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American Railway Association

HISTORICAL STATEMENT

PRESENT ACTIVITIES

AUGUST 15, 1921

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AUGUST 15, 1921

AMERICAN RAILWAY ASSOCIATION

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Terms Expire November, 1921

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Terms Expire November, 1923

EXECUTIVE COMMITTEE

W. W. Atterbury
E. J. Pearson
C. H. Markham
Howard G. Kelley
W. B. Storey
W. G. Besler
N. D. Maher

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HISTORICAL STATEMENT

AMERICAN RAILWAY ASSOCIATION

ORGANIZATION

The American Railway Association had its inception in meetings of General Managers and ranking operating railway officials known as Time-Table Conventions, the first of which was held on October 1, 1872, at Louisville.

The only business transacted at these sessions was the adoption of summer and winter time schedules for through passenger trains, until April, 1883, when the system of Standard Time was made effective, and the adoption of the report in 1883 covering uniform train signals referred to hereafter.

The "Time-Table Meeting" of October 13, 1875, changed its name to the "General Time Convention" by which name it was known until October, 1891, when the name was changed again to the "American Railway Association." The Southern Railway Time Convention was consolidated with the General Time Convention in April, 1886.

The scope of the American Railway Association was enlarged in January, 1919, and the following organizations have since that date been amalgamated therein:

American Railway Master Mechanics' Association.
American Railway Perishable Freight Association.
Association of Railway Telegraph Superintendents.
Association of Transportation and Car Accounting Officers.
Freight Claim Association.
International Association of Railway Special Agents and Police.
Master Car and Locomotive Painters' Association.
Master Car Builders' Association.
Railway Signal Association.
Railway Storekeepers' Association.

The present membership of the Association is as follows: 712 railroads, operating 315,340 miles. Included in the membership list are railroads located in Canada, Cuba, Japan, Mexico, Philippine Islands, Porto Rico, and Yucatan. There are included also in the membership of the Association 5 steamship companies, 1 express company, and 1 private car line.

The Articles of Organization and By-laws now in effect are attached (Exhibit A); also, a chart showing the present organization (Exhibit B).

ACTIVITIES

Among the many improved methods of operation developed through the cooperative efforts of the representatives of the railroads through the American Railway Association may be mentioned the following:

STANDARD TIME

As a result of the concerted action of the Association the railroads of the United States and Canada, on November 18, 1883, put into practical adoption a detailed system of Standard Time, the distinctive features of which were the following:

1. It provided for an elastic instead of a rigid boundary line between the hour sections.

2. It designated every point upon the boundary lines where the change from one hour section to the other was to be made.

3. It arranged a method of passing from the use of one hour standard to another without danger of interference or mistake.

4. It included definite information respecting the changes required in the schedule of every train on each railroad, in passing from the use of the old to the new standard, so as to preserve unbroken the relative time and connections with trains on other roads.

5. It suggested a common-sense adjustment between local and standard time by the statement: "In fact, local time would be practically abolished."

6. It proposed nothing that could not be adopted in practice.

Previous to November 18, 1883, every railway ran its trains by the local time of the City in which its headquarters were located or some other arbitrary standard. There were over fifty standards in use differing from each other by odd numbers of minutes. On the date named these were resolved into four standards based upon Greenwich Meridian Time with a difference of an even hour between them.

Since the adoption of the system in the United States its use has been extended to practically all parts of the civilized world.

STANDARD CODE OF TRAIN RULES

Prior to 1883, hand, lamp, whistle, and bell cord signals in use upon railway trains varied greatly; in some instances the motion of the hands or flag or sound of the whistle would convey exactly opposite meanings to employes of different railroads which used the same terminal station for their trains. Bell cord and other signals were similarly at variance.

A Code of Uniform Train Signals was adopted, taking effect November 16, 1884.

The adoption of the Uniform Code of signals led to another step: In October, 1884, a Committee was appointed to compile a Standard Code of Train Rules. The Code was first approved in April, 1887, and, from a simple beginning, the Standard Code at the present time contains rules for the operation of trains on single track, rules for movement by train orders, forms of train orders for single track operation, rules for double track operation, rules for movement by train orders on double track, forms of train orders for double track operation, rules governing the movement of trains with the current of traffic on two or more tracks by block signals, rules governing the movement of trains against the current of traffic on two or more tracks by block signals, and additional rules for three or more tracks.

The Standard Code is revised periodically as conditions warrant changes therein, the last revision being made in 1915. The Committee on Operating Rules of Division I—Operating, is at the present time studying the rules to ascertain whether any further changes are desirable therein.

The Standard Code in its essentials has been adopted by practically every railroad in the United States.

BLOCK SIGNAL AND INTERLOCKING RULES

In April, 1892, a Joint Committee consisting of the members of the Committee on Safety Appliances and the Committee on Train Rules was appointed to study the subject of interlocking switches and block systems.

The first report of the Joint Committee was submitted in February, 1893, in which were contained preliminary definitions of a simple block system. Further reports were made as the study of this subject progressed and on April 15, 1896, a Code of Block Signal Rules was adopted by the Association.

This Code has been continually studied since that time and other revisions made therein by the Association in 1900, 1909, and 1915.

The Code at the present time consists of definitions, requisites of installation and rules for manual block system, requisites of installation and rules for

controlled manual block system, and requisites of installation and rules for automatic block system.

The Joint Committee referred to above had been studying also the question of interlocking rules, submitting progress reports from time to time until the session of the Association on October 6, 1897, when a Code of Interlocking Rules was adopted. This Code has been revised since that time, in 1900, 1909, and 1915, and consists of definitions, requisites of installation, and rules.

The Standard Code of Train Rules, Block Signal Rules, and Interlocking Rules increases the safety factor in the operation of railroads by avoiding the necessity of train crews being familiar with different train rules where one railroad has trackage rights over another, at junction points, in detour movements, where employes leave the service of one road to enter the service of another, etc.

CAR SERVICE

Prior to 1888, settlement between railroads for freight car hire was made upon a mileage basis which meant that such cars when leaving their owner's tracks for movement over other lines earned no more for the railroad owning them than a rental charge based on the number of miles run; when they were not moving they earned nothing.

On February 1, 1888, a number of the railroads put into effect a mixed plan combining a per diem and mileage charge. The plan proved unsatisfactory and the railroads returned to mileage settlements until July 1, 1902, when the Per Diem Rules were adopted by the Association, and to which reference is made in another paragraph.

A Code of Car Service Rules was first adopted on October 12, 1892, and has since that date been subject to amendment whenever the conditions warranted such action.

PER DIEM

In the latter part of 1886, a Committee was appointed by the General Time Convention known as the Committee on Uniform Car Mileage Reports.

This Committee presented several reports as to methods for reporting mileage of line cars and uniform rates for passenger car mileage and was the predecessor of the Committee on Car Service, which, at the April, 1902, meeting of The American Railway Association, presented a Code of Per Diem Rules which was adopted and through which a system of accounting for interchange of freight cars was established.

The agreement entered into at that time, known as the Per Diem Rules Agreement, provided that:

> "The subscribing railroad company promises and agrees with each railroad company severally which heretofore or hereafter may have subscribed and filed a like agreement with the Secretary of The American Railway Association, that the subscriber will abide by the rules governing settlement for the use of freight cars, as adopted by the Association and designated 'Per Diem Rules' on the minutes of its proceedings; this agreement to continue until withdrawn by three months' previous notice in writing to the Secretary of the Association."

This agreement, in modified form, is in effect at the present time.

The Code of Per Diem Rules has been amended from time to time.

DEMURRAGE

Prior to April 1, 1910, each railroad published its own demurrage rules, and while they were generally uniform for various sections of the country, there was entire lack of uniformity as between those sections.

The American Railway Association formulated the uniform code of demurrage rules, designated them National Car Demurrage Rules, and recommended them for adoption by the carriers.

The National Association of Railway Commissioners appointed a committee consisting of one representative from the railroad commission of each State and a representative from the Interstate Commerce Commission, to formulate a system of car demurrage rules to be applicable alike on state and interstate transportation. This committee appointed a sub-committee of five members, of which Hon. Franklin K. Lane, Interstate Commerce Commissioner, was Chairman, charged with the duty of drafting a suitable demurrage code for submission to the full committee.

In formulating its uniform code, the committee used as a basis the uniform rules recommended by the American Railway Association. A general public hearing was held in the rooms of the Interstate Commerce Commission at Washington, June 4 and 5, 1909, as a result of which a uniform code of demurrage rules, of which the uniform rules recommended by the American Railway Association were the basis, was adopted by the National Association of Railway Commissioners, which received the endorsement of the Interstate Commerce Commission under date of December 18, 1909, with its recommendation that they be made effective on interstate transportation throughout the country.

The carriers generally issued their individual tariffs promulgating the recommended rules effective April 1, 1910.

Effective December 1, 1919, through the efforts of the American Railway Association, a common demurrage tariff was issued on behalf of practically all the railroads.

CODES OF RULES

In addition to the Codes of Rules adopted by the American Railway Association which have been referred to heretofore, Codes have been adopted as recommended practice, as follows:

Air Brake and Train Air Signal Rules; adopted in April, 1908.

Car Seal Rules; adopted in May, 1916.

L. C. L. Rules Covering the Receipt, Stowing, Handling and Delivery of Less-than-Carload Freight; adopted in November, 1914.

National Track Storage Rules; adopted in May, 1916.

Physical and Educational Qualifications of Employes; adopted in April, 1905.

Preservation of Wrecked Freight; adopted in May, 1914.

Storage Rules; adopted in May, 1912.

Switching Reclaim Rules; adopted in May, 1910.

Track Scale, Master Scale, and Test Car Specifications and Rules; adopted in May, 1913.

Weighing and Reweighing of Carload Freight; adopted in May, 1914.

Weighing and Reweighing of L. C. L. Freight; adopted in November, 1915.

PREVENTION OF ACCIDENTS AT GRADE CROSSINGS

At the November, 1915, session of The American Railway Association the Executive Committee reported that attention had been given to the prevention of accidents at grade crossings, and, in accordance therewith, a Special Committee had been appointed to investigate this subject.

At the session held in May, 1916, the Special Committee reported that in future study of the subject, in its opinion, certain specific standards should be adopted covering protection of grade crossings, and at its request, it was authorized to meet with a Committee of the National Association of Railway Commissioners, and other properly constituted Committees, to join with them in recommending standards to be followed in the protection of grade crossings.

As a result of the foregoing, standard recommendations were presented at the November, 1916, session and adopted, as follows:

> "That the railroad companies maintain, within the limits of their rights of way, proper cautionary signs such as are now in use or author-

ized by law, and, where deemed necessary, such signs shall be equipped with a red light at night.

"That all lights displayed at night towards the highway at grade crossings shall be red.

"That all crossing flagmen use during the day a uniform disc, 16 inches in diameter, painted white with a black border and the word 'Stop' painted thereon in black letters about 5 inches high, instead of the vari-colored flags which are now being used.

"The uniform painting of all crossing gates with alternate diagonal stripes of black and white."

Recommendations were also adopted covering an approved form of approach warning sign to be placed at a distance of not less than three hundred feet on each side of railroad tracks.

The uniformity secured by the foregoing recommendations avoids any misunderstanding of the meaning of warning signs or other devices used by the various railroads throughout the country for the protection of grade crossings and without doubt has greatly minimized the number of accidents at grade crossings.

RAILS

In April, 1908, The American Railway Association adopted the following resolution:

"RESOLVED: That the series of sections of types 'A' and 'B', and the specifications for Bessemer and open hearth steel rails, submitted with the report of the Committee on Standard Rail and Wheel Sections, be referred to the American Railway Engineering and Maintenance of Way Association, with the request that they follow up the question of determining the details as to drop test, etc., by observing the actual results of rails rolled under the new sections, and that they also arrange to collect from the different members and tabulate all information as to comparative wear of rails rolled from the different parts of the ingot, and all other information necessary to a proper study of the problem; that they be further requested to keep careful record of the comparative results in service of rails of types 'A' and 'B', and to prepare and submit to The American Railway Association a single type of section which will embody their ideas as to the best type that can be designed for use as a single standard to be adopted by the Association giving due weight to every factor entering into the problem."

Since that date a Committee has been continuously engaged, under the direction of the American Railway Association, with a paid expert in its service, in an exhaustive study of the several phases contained in the foregoing resolution. Effort has been devoted largely to the establishment of standard sections for steel rails and rail joints, the making and improvement of specifications for steel rails and joint bars, observing the performance of rails in track, critical investigation of methods of making rails in reference to their performance in track, and the critical investigation of the causes of rail breakage with a view particularly to their prevention.

The following has been accomplished:

Rail Sections.—After exhaustive study and observation of the service performance of different rail sections, a series of sections has been adopted, varying from 90 to 140 lbs. per yard by 10 lb. increments. The tendency is in the direction of heavier rail and although roads that already adopted sections, and naturally mostly held to them, still had the recommended sections before them when considering increases of weight. The number of patterns in use, although still too numerous, is less than would have been; furthermore, the recommended sections are of better design.

Standard Drillings for Rail Joints.—Standard drillings for rail joints have been adopted and standardization of the joint designs is also under study.

Specifications.—The specifications for rails and for joint bars have been given continuous attention with the object in view of obtaining a steady

improvement in the product. The various requirements have frequently been made the subject of extensive research.

Rail Failure Statistics.—Another important phase of the work has been the observation of the performance of rails made at the different mills from year to year. Annual reports of rail failures have been collected from member railroads; these reports have been useful in comparing the output of the several mills from year to year.

When the rail failure statistics were started, the failures averaged 400 per 100 track miles for five years' service. The last tabulation showed 74 failures per 100 track miles for five years' service. The rails made during the war years are not performing so well, but vigorous efforts are being made to get the rails back on the road to continued improvement, as much better average performance may be expected than has thus far been attained. Then, too, an increase in the wear or life of the rail can probably be attained.

Mill Practice.—Considerable attention has been and is being given to methods of manufacture in so far as the quality of the rails is involved. To a large extent, as a result of the work, the mills have from time to time made changes for the betterment of their product.

Study of Causes of Failures.—Still another important phase of the rail work has been the investigation of the causes of rail failures. The causes of most types of rail failures have been fairly well determined and the appropriate remedies are being gradually applied as occasion offers. There is one type of failure, however, that has come forward with the introduction of open-hearth steel for rails, namely, "transverse fissure," that has proved baffling. After considerable laborious research, it has been found that transverse fissures originate in internally shattered steel; the study is being continued to arrive at a final solution and remedy for this serious type of rail failure.

The outlay of the railroads for rails is from $100,000,000 to $150,000,000 annually, and improvement as regards decreased failures and increased service from the rails is to be brought about by consistent supervision and the acquisition of new information by persistent investigation and research.

STANDARD DIMENSIONS OF BOX CARS

At the session of the Association held on April 12, 1899, a resolution was adopted that a special committee of seven members be appointed by the President to whom could be referred the question of a standard box car.

The Committee conferred with representatives of the traffic departments and Classification Committees and at the meeting on October 23, 1901, the Association adopted a resolution that the standard box car be 36′ in length, 8′ 6″ in width, and 8′ in height, all inside dimensions.

CLEARANCES

Included in statement concerning Division IV—Engineering.

DETAILS OF LOCOMOTIVE AND CAR CONSTRUCTION

Included in statement concerning Division V—Mechanical.

TRANSPORTATION OF EXPLOSIVES AND OTHER DANGEROUS ARTICLES

In April, 1905, The American Railway Association appointed a Committee to prepare regulations to promote the safe transportation of explosives and other dangerous articles. The Committee, with the assistance of officers from the Army and Navy Departments, prepared a set of regulations which were approved in October, 1905, by the Association.

In October, 1906, the Association decided that some central agency of all the railroads was necessary for the uniform enforcement of the regulations and it approved a Constitution and By-laws and created the Bureau for the Safe Transportation of Explosives and Other Dangerous Articles.

The Bureau started active work in June, 1907, with a membership comprised of 78 railroad companies operating 136,026 miles and has been continued in operation ever since. Its present membership comprises 452 railroad companies operating 284,835 miles, 8 steamship companies, 5 express companies and 83 manufacturers and shippers of explosives and other dangerous articles and manufacturers of shipping containers therefor.

The Bureau maintains (1) a directing headquarters at New York City in charge of a Chief Inspector, formerly an Army officer, (2) a Chemical Laboratory with the necessary personnel and analytical apparatus, and (3) a force of traveling inspectors, who are assigned to various parts of the United States and Canada with district headquarters in the offices of operating railway officials. Their duties are briefly as follows:

Inspection of factories where explosives and dangerous articles other than explosives are manufactured and prepared for shipment.

Inspection of factories where containers for the shipment of explosives and other dangerous articles, as prescribed by the Commission's specifications, are manufactured. Conducting tests of such shipping containers for the purpose of arriving at definite conclusions as to requirements necessary for safety in their handling and transportation.

Forwarding of samples of explosives and other dangerous articles to the Chemical Laboratory of the Bureau for the purpose of ascertaining whether or not they are safe to transport, and to verify or advise packing requirements.

Inspection of storage magazines in which explosives are stored and from which shipments are made by rail.

Condemnation of explosives which are unsafe for shipment by rail, and forwarding of samples to the Chemical Laboratory for examination to ascertain whether or not repacking may be done with safety, or whether destruction is necessary.

Supervision of the repacking or other disposition of condemned or leaking explosives or other dangerous articles discovered in transit or on carrier's property.

Supervision of repacking or other disposition of condemned explosives in storage shipping magazines.

Inspection of steamship, express and railway stations, cars, yards, terminals, wharves, and piers, and instruction of employes at these points in the requirements of the Interstate Commerce Commission Regulations.

Investigation of all fires and explosions involving explosives or other dangerous articles in transit, or in storage on carrier's property.

Instruction and education of shippers of explosives and other dangerous articles to prevent violations of the Interstate Commerce Commission Regulations.

Examination of designated railway employes for the purpose of ascertaining whether or not they are qualified to superintend and handle explosives and other dangerous articles.

Inspection and investigation of conditions and submission of recommendations for the safe location of factories where explosives and other dangerous articles are made, including magazines for the storage of explosives, tanks for storage of inflammable oils and loading and unloading racks for inflammable oils, with the view of securing the safety of the traveling public.

A Statute passed by Congress in 1866, to regulate the packing of explosives for transportation was impractical and obstructive to safe transportation, and

one of the first steps necessary was the repeal of this obsolete Statute. This was accomplished by the Federal law of May 30, 1908, now codified by the Act of March 4, 1909, as Sections 232 to 236, and as amended by the Act of March 4, 1921. Section 233 requires the Interstate Commerce Commission to formulate, and the carriers by land or water to enforce, reasonable regulations to promote safety. In Section 233 of the Act of March 4, 1921, the following appears:

> " *** In the execution of the provisions of this Act the Interstate Commerce Commission may utilize the services of the Bureau for the Safe Transportation of Explosives and Other Dangerous Articles ***."

During the interval from June, 1907, to June, 1908, the Bureau of Explosives in cooperation with the manufacturers of explosives, worked to improve the regulations that had been adopted by The American Railway Association, and were in a position, therefore, to submit to the Interstate Commerce Commission a set of regulations for their consideration under the authority granted by the Federal law of May 30, 1908. The regulations as submitted were adopted by the Commission with few changes and were prescribed to take effect October 1, 1908.

The promulgation by the Commission of the regulations for the transportation of explosives made it necessary for the Association to prepare regulations for the transportation of inflammable articles and acids, and these railway regulations were first adopted by The American Railway Association in September, 1908.

After some modification these rules were adopted and promulgated by the Interstate Commerce Commission and made effective October 1, 1911.

The Commission has recognized the work of the Bureau of Explosives and in its regulations has delegated to the Bureau certain duties in connection with inspection and enforcement of the rules.

The work of the Bureau is supervised by an Executive Committee of railway officials, to whom the Chief Inspector reports periodically.

STANDARD HEIGHT OF DRAW BARS
UNIFORM LOCATION OF HAND HOLDS AND GRAB IRONS

In July, 1892, the Congress enacted a law which provided, among other things, a request that The American Railway Association designate to the Interstate Commerce Commission the standard height and maximum variation for draw bars, to which, after July 1, 1893, all cars should conform.

The Act also provided that all cars were required to be provided with hand holds previous to July 1, 1893.

The American Railway Association thereupon adopted requirements for hand holds and grab irons and also designated to the Interstate Commerce Commission the standard height of draw bars on freight cars.

SPECIAL COMMITTEE ON RELATIONS OF RAILWAY OPERATION TO LEGISLATION

On November 17, 1909, a Special Committee on Relations of Railway Operation to Legislation was established for the purpose of submitting information to Congress and the several State Legislatures on bills having reference to the operation of the railroads, and also to arrange for the presence of competent witnesses at hearings on such bills.

During the period of Federal Control the Committee ceased to function. Following the return of the railroads to their owners the Committee has been re-organized and is now in a position to function.

WAR ACTIVITIES

On April 11, 1917, in response to an invitation extended by Mr. Daniel Willard, a member of the Advisory Commission of the Council of National

Defense, the chief executives of the railroads of the country held a conference at which time the following resolution was adopted:

"RESOLVED, That the railroads of the United States, acting through their chief executive officers here and now assembled, and stirred by a high sense of their opportunity to be of the greatest service to their country in the present national crisis, do hereby pledge themselves, with the Government of the United States, with the Government of the several States, and one with another, that during the present war they will coordinate their operations in a continental railway system, merging during such period all their merely individual and competitive activities in the effort to produce a maximum of national transportation efficiency.

"To this end they hereby agree to create an organization which shall have general authority to formulate in detail and from time to time a policy of operation of all or any of the railways, which policy, when and as announced by such temporary organization, shall be accepted and earnestly made effective by the several managements of the individual railroad companies here represented."

To accomplish the purpose set forth in this resolution, the Committee known as the Special Committee on National Defense of the American Railway Association, was enlarged to a total of thirty-three, sectional committees composed of members of the general committee being established in the six army departments, all under the direction of an Executive Committee of five, sitting constantly in Washington, with which was associated a member of the Interstate Commerce Commission, and the Chairman of the Advisory Commission of the Council of National Defense, both ex-officio.

Sub-Committees were appointed as follows:

Military Equipment Standards.
Military Transportation Accounting.
Military Passenger Tariffs.
Military Freight Tariffs.
Materials and Supplies.

The Commission on Car Service of the American Railway Association dealing with the general question of car efficiency, became a Sub-Committee.

Points of contact with the army were arranged by the appointment of general agents at army headquarters, at the several departments and at each mobilization and concentration camp.

The Special Committee referred to continued to function until the railroads were taken over by the Federal Government at which time the Railroad Administration continued as Sections the machinery inaugurated by the Special Committee on National Defense of the American Railway Association for the movement of troops and the Car Service Commission.

FEDERAL CONTROL

During the period of Federal Control, the American Railway Association continued to function on order of the Director General of Railroads.

In addition to its regular work, special subjects were referred to the Association by the several Divisions of the Administration for consideration and recommendation, such recommendations being promulgated later by the Director General.

The Association was used also as the disbursing agency for a number of the activities of the United States Railroad Administration.

GENERAL

The American Railway Association has adopted a large number of recommendations looking to safety and economy in practice, among which may be mentioned:

On October 7, 1894, the Association adopted the details of car construction as recommended by the Master Car Builders' Association, as a standard of the American Railway Association, and recommended that all railway companies and car companies conform thereto.

On October 8, 1890, the Association adopted the Master Car Builders' type of Automatic Freight Car Coupler as a standard for its members.

On October 14, 1892, the Association adopted as standard, requirements for heating passenger trains.

On October 13, 1891, the Association adopted standard regulations relative to train lighting.

On April 7, 1897, the Association adopted standard gauge of tracks.

On May 18, 1910, a recommendation was adopted regarding uniform marking of freight cars.

On November 18, 1908, the Association, by formal action, indicated that the substitution of the telephone for the telegraph in blocking and dispatching trains can be made safely, and that the use of telephone for such purposes is recognized and recommended as the standard operating instrumentality.

Recommendation relative to cards permitted on freight cars; adopted in November, 1908, and amended in 1913, 1915 and 1916. The primary object of this recommendation was to avoid any cards being attached to freight cars which might mitigate the effectiveness of the placards for explosives and other inflammable articles.

Detour agreement; adopted in October, 1905, and amended 1910, 1911, and 1913; providing a standard agreement for execution by any two or more companies so that in case of emergency the trains of one company might run over the tracks of another company without delay.

Recommendation as to reciprocal charges for cleaning and disinfecting stock cars. The result of this resolution was to avoid any controversy and consequent loss of time and expense in agreeing upon an equitable distribution of such expense.

Numerous recommendations have been made covering packing, marking and handling of freight, such as the inspection of box cars before loading with bulk grain, methods for handling carload shipments of commodities in sacks or barrels subject to damage by water, inspection and certification of box cars, methods for stowing eggs, etc. The object of these recommendations was to increase economy in operation and to reduce loss and damage to freight.

PRESENT ACTIVITIES

The activities of the American Railway Association following its re-organization in January, 1919, and subjects now under consideration are covered in the accompanying statements.

DIVISION I—OPERATING

DIVISION I—OPERATING

Division I—Operating, was organized on April 9, 1919, and includes the activities of the several former Operating Committees of the American Railway Association and also the Association of Railway Telegraph Superintendents, American Association of Local Freight Agents, American Railway Chief Special Agents and Chiefs of Police Association, and several of the Medical Associations. The duty of the Operating Division is to consider and report upon questions affecting operating practices.

Since its organization the several Committees of the Operating Division have been engaged in the consideration of subjects, as follows:

Standard Code of Train Rules, Block Signal and Interlocking Rules.

Grade Crossing Protection and Trespassing.

Safe Transportation of Explosives and Other Dangerous Articles.

Freight Station Operations and Handling of Freight.

Loading and Unloading Locations for Inflammable Liquids.

Subjects affecting the telegraph and telephone service.

The present activities of the Division are as follows:

Committee on Operating Rules

The Committee on Operating Rules has under consideration the preparation of specifications for a standard torpedo. It is expected that if the number of torpedoes now used by members can be materially reduced, a large saving in the cost can be effected. The Committee handles all questions affecting the Standard Code of Train Rules, Block Signal Rules and Interlocking Rules.

A considerable number of suggestions for the revision of specific rules in the Standard Code have been received and are now being considered.

Committee on Grade Crossing Protection and Trespassing

The Committee on Grade Crossing Protection and Trespassing has recommended that an effort be made to have the several States adopt, as standard, the grade crossing warning sign as approved by the Association. The sign has already been adopted as standard by quite a number of States and if the number of types of sign of this nature now required could be reduced to one, it would result in a saving to railroads where they have to supply same.

The question of uniform grade crossing legislation in the several states has been considered and the Committee has submitted recommendations covering the outline of a draft of a state law to cover this subject.

MEDICAL AND SURGICAL SECTION

The following subjects are under consideration:

Separation of ice from drinking water in equipment and in stations.

Quarantine Regulations.

Water used for drinking and culinary purposes.

Placarding condemned water supplies.

Sanitary Code.

Hospital Standards.

Traumatic Hernia.

Prevention and control of occupational diseases and hazards.

PROTECTIVE SECTION

A special sub-committee of the Committee of Direction has been appointed to cooperate with a special representative of the Freight Claim Division and make a study of the most effective way of bringing about closer cooperation between the Freight Claim Division and the Protective Section with a view of decreasing the losses due to thefts, etc.

This Section held its first annual meeting for organization on July 14 and 15, 1921.

FREIGHT STATION SECTION

The Freight Station Section, Division I—Operating, which was organized in December, 1920, took over the activities of the American Association of Freight Agents, which was organized at St. Louis in 1888, and which has been active in handling freight station matters since that time.

This Section has for its object the interchange of ideas and opinions for the development and solution of problems connected with that branch of railroad service which it represents, introducing uniform, economical and efficient methods in various branches of freight station service. The Section is also active both on its own initiative and through co-operation with various other sections and divisions in freight claim prevention work. It has a committee which is co-operative with a similar committee of the Transportation Division in preparing a standard book of L. C. L. freight loading rules.

The Freight Station Section recently submitted a recommendation to the parent body looking toward the extension of interline billing of freight, pointing out in its report vast economies to be attained through the extension of such billing. Another important subject now under consideration by this Section is licensing of public carts and vehicles, with the object in view of bringing about a more satisfactory plan of identification of drivers, thus reducing losses through improper delivery of freight.

The question of the advisability of bonding station receiving and delivery clerks in the interest of improving the personnel of such employes, and safeguarding the property in charge of transportation companies, is also receiving attention at the hands of this Section. The Section is also working on a plan of "Affirmative Loading Check of L. C. L. Freight," keeping in mind economy in such operation, and at the same time endeavoring to evolve a plan that will be satisfactory to the Freight Claim Section in pro-rating claims for unlocated losses.

The question of credits and collections of freight and other charges is also receiving attention, together with many other detailed features of station operation.

SAFETY SECTION

The Board of Directors has created in the Operating Division a Safety Section and a temporary Committee of Direction has been appointed to organize and handle the work of the Section until its successor is duly elected.

The representatives of members in this Section are the Safety Supervisors, or other officials who have supervision over safety first activities.

The temporary Committee of Direction has arranged for the appointment of the following Committees:

Publicity and Educational Committee.

Committee on Prevention of Grade Crossing Accidents.

Temporary Committee on Nominations.

Committee on Arrangements.

It is proposed that the annual sessions of the Section will be held in June.

TELEGRAPH AND TELEPHONE SECTION

On the recommendation of the Telegraph and Telephone Section the following specifications, rules, etc., have been adopted:

Specifications for Locating and Installing Transpositions in Telephone Circuits.

Specifications for Underground Conduit Construction for Telegraph, Telephone and Other Low Voltage Signal Cables.

Specification for Conduit Castings.

Specification for Creosoted Wood Conduit.

Specification for Creosoted Wood Plank.

Specification for Creosoting Timber.

Specification for Fibre Conduit.

Specification for Pulling-In Iron.

Specification for Steel Pipe Conduit.

Specification for Vitrified Clay Conduit.

Specification for Single Circuit Transposition Brackets.

Specification for Phantom Circuit Transposition Brackets.

Specification for One-Half ($1/2$) Inch Pin for Transposition Brackets.

General Specification for Galvanizing for Iron and Steel.

Telegraph Operator's Examination on Switchboard Manipulation.

Classification Telegraph Service.

Education Covering Proper Use of Telegraph Facilities.

Essential Elements for the Electrical Protection of the Telegraph and Telephone Plant.

Specifications for the Electrical Protection of the Railroad Telegraph and Telephone Plant.

Specifications for the Installation of Telegraph and Telephone Equipment in Railroad Offices.

Protection Against Electrolysis.

Traingrams.

Dictating, Transcribing and Filing of Telegrams.

Semi-Automatic Sending Keys.

The following subjects are now under consideration by the Telegraph and Telephone Section:

Basic Rules and Pole Tables for the Construction and Maintenance of Wooden Pole Lines Along Railroads for Telegraph and Telephone Service.

Specifications for Telegraph, Telephone and Other Signal Wires and Cables Crossing the Tracks and (or) Property of Steam and Electrified Railroads.

Specification for Lead Sheath, Insulated and Enameled Non-Quaded, Office Cable with No. 16 A. W. G. Conductors.

Progress report relative to proposed conference with Committee No. 3—Power Interlocking, of the Signal Section, relative to typical floor and wall plans showing space necessary for and most desirable arrangements of telegraph and telephone equipment in railroad stations, towers, booths and office buildings. These plans to include sizes and location of operating tables at smaller offices where single Morse and train order instruments are used, together with layouts of instruments and signal apparatus in such offices.

Specifications covering Wire Chiefs' Equipment and Routing in Railroad Offices.

Specification for the Operation of Switchboard Volt Mil-Ammeter.

Specification for the Operation of Special Bridge Testing Sets.

Specifications for the Installation and Maintenance of Gravity Batteries.

Specifications for the Installation and Maintenance of Caustic Soda Batteries.

Specifications for Cross Connection Records for Terminal and Relay Offices.

Report on the application of the practices recommended in the report on Electrolysis adopted by the Section, to the cable plant on railroads and the systematic report of members covering results obtained, including the extent to which it has been found that ordinary maintenance forces are able to detect and intelligently record electrolytic action.

Report on accomplishment of other bodies on the subject of Protection Against Electrolysis.

Specification for Telegraph and Telephone Line Fuses.

Specification for Telegraph and Telephone Office Arresters.

Specification for Telegraph and Telephone Cable Arresters.

Specification for Telegraph and Telephone Instrument Fuses.

Specification for Telegraph and Telephone Heat Coils.

Specification for Telegraph and Telephone Protector Mountings.

Specification for Telegraph and Telephone Protectors.

Report relative to Telegraph and Telephone Development.

Use of automatic telephone systems for communication between the various departments of a railroad, leaving the ordinary switchboard free to handle public requirements.

In cities where there are headquarters of several railroads, the desirability of recommending that tie lines between the switchboards of the different railroads be provided to eliminate the necessity of communications going through the different telephone exchanges.

Use of Rotary repeaters.

Standardization of operators' employment records.

Necessity of transmitting initials of railroads after signature.

Use of printer telegraph apparatus. Recommendation as to the load, etc., requisite to justify such method of operation.

Use of carrier system for distribution of messages to and from various telegraph tables and the delivery in large office buildings by pneumatic tube.

Uniform rules covering employes of and under the general supervision of the Superintendent of Telegraph.

Recommendation in connection with the organization of a proper method of educating wire chiefs' repeater attendants and operators.

Desirability of a standard code covering routing matter exchanged on a railroad and more particularly in connection with such matters exchanged between different railroads transmitted over commercial wires such as reservation messages.

Telegraph office routing.

Theory of inductive interference.

Revision of discussion of cause and effects of inductive interference.

Requirements of efficient railroad telephone transmission.

Recommendation of standard rules and practices toward the improvement of telephone transmission.

Report relative to the technical training of employes in telegraph and telephone departments.

Report relative to use of radio and wired wireless on railroads.

The accompanying statement shows the organization of Division I—Operating:

DIVISION I—OPERATING

Officers

W. J. Fripp.....*Chairman*
R. E. McCarty.....*Vice-Chairman*

General Committee

W. J. Fripp (Chairman), General Manager, New York Central R. R.
R. E. McCarty (Vice-Chairman), General Manager, Central Region, Pennsylvania System.
C. L. Bardo, General Manager, New York, New Haven & Hartford R. R.
C. G. Burnham, Executive Vice-President, Chicago, Burlington & Quincy R. R.
J. F. Caskey, Superintendent of Telegraph, Lehigh Valley R. R.
H. Hulatt, Manager of Telegraphs, Grand Trunk Ry. System.
A. D. MacTier, Vice-President, Canadian Pacific Ry.
J. M. Rapelje, General Manager, Northern Pacific Ry.
G. R. Loyall, President, Norfolk Southern R. R.
J. H. Young, President, Denver & Rio Grande R. R.

Committee on Nominations

F. H. Alfred, President and General Manager, Pere Marquette Ry.
C. M. Kittle, Senior Vice-President, Illinois Central R. R.
Alfred Price, General Manager, Canadian Pacific Ry.
J. S. Pyeatt, President, Gulf Coast Lines.
E. M. Rine, Vice-President and General Manager, Delaware, Lackawanna & Western R. R.

Conference Committee

W. J. Fripp, General Manager, New York Central R. R.
C. L. Bardo, General Manager, New York, New Haven & Hartford R. R.
J. H. Young, President, Denver & Rio Grande R. R.

Committee on Operating Rules

M. S. Connors (Chairman), General Manager, Hocking Valley R. R.
H. E. Hutchens, General Inspector Passenger Transportation, Southern Ry.
J. C. Johnson, General Superintendent of Transportation, Eastern Region, Pennsylvania System.
F. C. Fox, General Manager, Eastern Lines, Atchison, Topeka & Santa Fe Ry.
Alfred Price, General Manager, Canadian Pacific Ry.
F. Walters, General Manager, Chicago & North Western Ry.
T. W. Evans, Assistant General Manager, New York Central R. R.
B. R. Pollock, Vice-President and General Manager, Boston & Maine R. R.
E. W. Grice, Assistant to President, Chesapeake & Ohio Ry.

Committee on Grade Crossing Protection and Trespassing

C. L. Bardo (Chairman), General Manager, New York, New Haven & Hartford R. R.
D. H. Beatty, Superintendent of Safety, Southern Ry.
J. H. Dyer, General Manager, Southern Pacific Company, Lines West.
T. S. Stevens, Signal Engineer, Atchison, Topeka & Santa Fe Ry.
F. L. Thompson, Chief Engineer, Illinois Central R. R.
C. H. Tillett, Signal Engineer, Grand Trunk Ry.
W. J. Towne, Chief Engineer, Chicago & North Western Ry.
J. Q. Van Winkle, President, Central Indiana R. R.
G. S. Waid, Vice-President and General Manager, Southern Pacific Co., Lines in Texas.

Special Committee on Loading and Unloading Locations for Inflammable Liquids

C. W. Galloway (Chairman), Vice-President, Baltimore & Ohio R. R.
C. L. Bardo, General Manager, New York, New Haven & Hartford R. R.
E. B. Berry, Superintendent of Insurance, Southern Ry.
D. Crombie, Transportation Assistant, Canadian National Rys.
J. W. Roberts, General Superintendent of Transportation, Northwestern Region, Pennsylvania System.
M. W. Clement, General Superintendent, Lake Division, Central Region, Pennsylvania System.
R. D. Starbuck, Assistant Vice-President, New York Central R. R.
C. B. Strohm, Superintendent of Transportation, Atchison, Topeka & Santa Fe Ry.

MEDICAL AND SURGICAL SECTION

Officers

Dr. D. Z. Dunott.....*Chairman*
Dr. G. G. Dowdall.....*1st Vice-Chairman*
Dr. Duncan Eve.....*2d Vice-Chairman*
Dr. C. W. Hopkins.....*3d Vice-Chairman*
J. C. Caviston.....*Secretary*

Committee of Direction

Dr. D. Z. Dunott (Chairman), Chief Surgeon, Western Maryland Ry.
Dr. G. G. Dowdall (First Vice-Chairman), Chief Surgeon, Illinois Central R. R.
Dr. Duncan Eve (Second Vice-Chairman), Chief Surgeon, Nashville, Chattanooga & St. Louis Ry.
Dr. C. W. Hopkins (Third Vice-Chairman), Chief Surgeon, Chicago & North Western Ry.
Dr. William B. Coley, Chief Surgeon, New York Central R. R.
Dr. T. R. Crowder, Director, Department of Sanitation and Surgery, The Pullman Co.
Dr. H. S. Cumming, Surgeon General, Bureau of The Public Health Service.
Dr. A. W. Freeman, Commissioner of Health, State Department of Health (Ohio).
Dr. Robert J. Graves, Chief Surgeon, Boston & Maine R. R.
Dr. J. A. Hutchison, Chief Surgeon, Grand Trunk Railway System.
Dr. A. W. Ide, Chief Surgeon, Northern Pacific Ry.
Dr. A. F. Jonas, Chief Surgeon, Union Pacific R. R.
Dr. J. P. Kaster, Chief Surgeon, Atchison, Topeka & Santa Fe Ry.
Dr. R. W. Knox, Chief Surgeon, Southern Pacific Lines.
Dr. Southgate Leigh, Chief Surgeon, Virginian Ry.
Dr. S. C. Plummer, Chief Surgeon, Chicago, Rock Island & Pacific Ry.
Dr. J. B. Walker, Surgeon, Eastern Region, Pennsylvania System.

Committee on Nominations

Dr. A. L. Ensminger, Chief Surgeon, Cleveland, Cincinnati, Chicago & St. Louis R. R.
Dr. A. E. Chace, Chief Surgeon, St. Louis Southwestern Ry.
Dr. J. M. Burke, Chief Surgeon, Seaboard Air Line Ry.
Dr. J. M. Little, Assistant Chief Surgeon, Boston & Albany R. R.
Dr. P. F. Vasterling, Chief Surgeon, Missouri Pacific R. R.

Committee on Sanitary Code

Dr. B. Saunders (Chairman), Chief Surgeon, Fort Worth & Denver City Ry.
Dr. H. A. Beatty, Chief Surgeon, Canadian Pacific Ry.
Dr. J. M. Burke, Chief Surgeon, Seaboard Air Line Ry.
Dr. W. T. Oppenheimer, Chief Surgeon, Chesapeake & Ohio Ry.

Dr. F. E. Pierce, Chief Surgeon, New York Central R. R.
Dr. J. M. Wainwright, Chief Surgeon, Delaware, Lackawanna & Western R. R.
Dr. T. R. Crowder, Director, Department of Sanitation and Surgery, The Pullman Co. (Representative from Committee of Direction.)
(One vacancy).

Committee on Hospital Standards

Dr. J. M. Little (Chairman), Assistant Chief Surgeon, Boston & Albany R. R.
Dr. Craig Barrow, Chief Surgeon, Central of Georgia Ry.
Dr. D. S. Fairchild, Local Surgeon, Chicago & North Western Ry.
Dr. Spencer M. Free, Company Surgeon, Pennsylvania System, Eastern Region.
Dr. D. Guthrie, Chief Surgeon, Lehigh Valley R. R.
Dr. J. P. Mitchell, Chief Surgeon, Canadian National Rys.
Dr. J. W. O'Connor, Chief Surgeon, Denver & Rio Grande R. R.
Dr. P. F. Vasterling, Chief Surgeon, Missouri Pacific R. R.
Dr. J. B. Walker, Surgeon, Eastern Region, Pennsylvania System. (Representative from the Committee of Direction).

Committee on Physical Standards

Dr. J. L. Bower (Chairman), Chief Medical Examiner, Eastern Region, Pennsylvania System.
Dr. Lucius E. Burch, Chief Surgeon, Tennessee Central R. R.
Dr. A. E. Chace, Chief Surgeon, St. Louis Southwestern Ry.
Dr. W. L. Hartmann, Chief Surgeon, Michigan Central R. R.
Dr. E. V. Milholland, Medical and Surgical Director, Baltimore & Ohio R. R.
Dr. R. B. Slocum, Superintendent and Medical Director, Relief Department, Atlantic Coast Line Ry.
Dr. G. W. Stockwell, Company Surgeon, Grand Trunk Ry. System.
Dr. C. W. Hopkins, Chief Surgeon, Chicago & North Western R. R. (Representative from the Committee of Direction).

Committee on Prevention and Control of Occupational Diseases and Hazards

Dr. A. L. Ensminger, (Chairman), Chief Surgeon, Cleveland, Cincinnati, Chicago & St. Louis R. R.
Dr. W. H. Bohart, Chief Surgeon, Chicago & Eastern Illinois R. R.
Dr. Guy Cochran, Chief Surgeon, Los Angeles & Salt Lake R. R.
Dr. J. M. Dinnen, Chief Surgeon, New York, Chicago & St. Louis R. R.
Dr. W. S. Elkin, Chief Surgeon, Atlanta, Birmingham & Atlantic Ry.
Dr. M. P. Parrish, Chief Surgeon, Wabash Ry.
Dr. R. A. Woolsey, Chief Surgeon, St. Louis-San Francisco Ry.
Dr. J. A. Hutchison, Chief Surgeon, Grand Trunk Ry. System. (Representative from the Committee of Direction.)

Committee on Water

Dr. J. A. Denney (Chairman), Medical Director, Chicago, Burlington & Quincy R. R.
Dr. W. L. Brown, Chief Surgeon, El Paso & Southwestern System.
Dr. S. S. Gale, Chief Surgeon, Norfolk & Western Ry.
Dr. F. H. McNaught, Chief Surgeon, Colorado & Southern Ry.
Dr. S. H. Pinkerton, Chief Surgeon, Oregon Short Line R. R.
Dr. S. B. Taylor, Chief Surgeon, Hocking Valley Ry.
Dr. H. B. Zimmerman, Chief Surgeon, Great Northern Ry.
Dr. J. P. Kaster, Chief Surgeon, Atchison, Topeka & Santa Fe Ry. (Representative from the Committee of Direction.)

Special Committee on Hernia

Dr. W. B. Coley (Chairman), Chief Surgeon, New York Central R. R.
Dr. C. W. Hopkins, Chief Surgeon, Chicago & North Western Ry.
Dr. J. A. Hutchison, Chief Surgeon, Grand Trunk Ry. System.
Dr. Southgate Leigh, Chief Surgeon, Virginian Ry.
Dr. J. B. Walker, Surgeon, Eastern Region, Pennsylvania System.

PROTECTIVE SECTION

Officers

R. S. Mitchell.....*Chairman*
H. L. Denton.....*1st Vice-Chairman*
Emmett Gregg.....*2d Vice-Chairman*
J. C. Caviston.....*Secretary*

Committee of Direction

R. S. Mitchell (Chairman), Chief Special Agent, Missouri Pacific Ry.
H. L. Denton (First Vice-Chairman), General Superintendent of Police, Baltimore & Ohio R. R.
Emmett Gregg, (Second Vice-Chairman), Superintendent of Special Service, Atchison, Topeka & Santa Fe Ry.
J. R. McMahon, Chief Special Agent, New York, New Haven & Hartford R. R.
W. J. McFetridge, Chief Special Agent, Northern Pacific Ry.
W. G. Baldwin, Chief Special Agent, Norfolk & Western Ry.
W. J. Poole, Chief Special Agent, Central of Georgia Ry.
S. L. Stewart, Superintendent, Special Service, Missouri, Kansas & Texas R. R.
E. R. Hines, Chief Special Agent, Terminal R. R. Association of St. Louis.
T. E. Pratt, Chief Special Agent, Chicago, Burlington & Quincy R. R.

Committee on Nominations

E. J. Miles, Chief of Police, New York Central R. R., Lines East.
G. S. Ward, Chief Special Agent, Wabash Ry.
John Gale, Chief Special Agent, Union Pacific R. R.
W. M. Briggs, Superintendent of Police, Eastern Region, Pennsylvania System.
J. W. Connelly, Chief Special Agent, Southern Ry. System.

Committee on Marking Cartons for Identification Purposes

(To cooperate with Freight Claim Prevention Committee)

J. W. Connelly (Chairman), Superintendent of Police, Southern Ry. System.
J. W. King, Chief Special Agent, Chesapeake & Ohio Ry.
M. Welsh, Chief Special Agent, Seaboard Air Line Ry.
W. W. Morrison, Superintendent of Police, Atlantic Coast Line R. R.
J. O. D. Copenhaner, Assistant Chief Special Agent, Norfolk & Western Ry.

FREIGHT STATION SECTION

Officers

J. C. Gilmore.....*Chairman*
C. M. Teschemacher.....*1st Vice-Chairman*
H. W. Maynard, Jr.....*2d Vice-Chairman*
R. O. Wells.....*Secretary*

Committee of Direction

J. C. Gilmore (Chairman), Agent, Eastern Region, Pennsylvania System.
C. M. Teschemacher (First Vice-Chairman), General Agent, Chicago & Alton R. R.
H. W. Maynard, Jr. (Second Vice-Chairman), Agent, Central R. R. of New Jersey.
E. L. Kemp, General Agent, Stock Yards District Agency.
C. E. Fish, Agent, Baltimore & Ohio R. R.
L. J. Brinkman, General Agent, Michigan Central R. R.
E. J. Coffey, Agent, Southern Ry.
Frank Laughlin, Agent, Erie R. R.
J. R. Hitchcock, Agent, Atchison, Topeka & Santa Fe Ry.
C. Treat Spear, Agent, Chicago, St. Paul, Minneapolis & Omaha R. R.
J. L. Harrington, Agent, Chicago, Burlington & Quincy R. R.
C. E. Cochrane, Agent, Eastern Region, Pennsylvania System.

Committee on Nominations

H. W. Maynard, Jr. (Chairman), Agent, Central R. R. of New Jersey.
W. H. Herbig, Agent, Chicago, Rock Island & Pacific Ry.
Frank Laughlin, Agent, Erie R. R.
G. Washington, Agent, New Orleans & Northeastern R. R.
T. W. Pate, Agent, Atchison, Topeka & Santa Fe Ry.

Freight Station Rules

E. J. Coffey (Chairman), Agent, Southern Ry.
G. B. Ingersoll, Agent, Wabash Ry.
W. R. Pittman, Agent, Atlantic Coast Line R. R.
Leslie Ellis, Agent, Richmond, Fredericksburg & Potomac R. R.
W. W. Alexander, Agent, Louisville & Nashville R. R.

Committee on Topics

J. H. Mahoney (Chairman), Agent, Chicago & North Western Ry.
Geo. F. Wagner, Agent, Pennsylvania System, Central Region.
E. E. Lamberton, Agent, Southern Pacific Steamship Co.
G. W. Dennison, Agent, Northwestern Region, Pennsylvania System.
J. R. Hitchcock, Agent, Atchison, Topeka & Santa Fe Ry.

Committee on Operating

W. A. Bartlett (Chairman), Agent, Chicago, Burlington & Quincy R. R.
C. C. Johnson, Agent, Nashville, Chattanooga & St. Louis Ry.
Chas. C. Kinney, Agent, Eastern Region, Pennsylvania System.
C. L. Robinson, Agent, Denver & Salt Lake R. R.
E. C. Harrison, Agent, Chicago, Burlington & Quincy R. R.

Committee on Station Traffic

J. H. Rogers (Chairman), Agent, Long Island R. R.
L. W. Hildum, Agent, Ocean Steamship Co.
H. J. Nelson, Agent, Central R. R. of New Jersey.
Edmund A. Scheetz, Agent, Philadelphia & Reading Ry.
Frank Meahl, Agent, New York Central R. R.

Committee on Station Settlements

E. J. MacDonald (Chairman), Agent, Wabash R. R.
M. H. Rudolph, Agent, Chicago & Eastern Illinois R. R.
B. H. King, Mobile & Ohio R. R.
W. H. Rhedemeyer, Agent, Illinois Central R. R.
E. F. Randall, Agent, Chicago, Peoria & St. Louis R. R.

Committee on Arrangements

C. M. Teschemacher (Chairman), General Agent, Chicago & Alton R. R.
R. O. Wells, Agent, Illinois Central R. R.
E. O. Burton, Agent, Chicago Junction Ry.
E. L. Kemp, General Agent, Stock Yards District Agency.
N. W. Pierce, Agent, Chicago, Milwaukee & St. Paul Ry.
G. B. Ingersoll, Agent, Wabash R. R.

Sectional Committees

Akron, Ohio.....R. H. Troescher (President), Baltimore & Ohio R. R.
B. D. Shafer, (Secretary), Pennsylvania System.
Albany, N. Y.....F. E. Vosburgh (President), Delaware & Hudson Co.
W. T. Campbell (Secretary), Delaware & Hudson Co.
Alton, Ill.....O. E. George (President), Chicago & Alton R. R.
Athens, Ga.....

Atlanta, Ga.....F. G. McCool (President), Georgia R. R.
F. L. Russell (Secretary), Central of Georgia R. R.
Augusta, Ga.....W. J. Townsend (President), Southern Ry.
L. A. Burckmyer (Secretary), Central of Georgia R. R.
Austin, Texas.....M. Burns (President), Houston & Texas Central R.R.
W. E. Babel (Secretary), International & Great Northern Ry.
Baltimore, Md.....C. E. Cochrane (President), Pennsylvania System, Eastern Region.
L. J. Crossley (Secretary), Baltimore & Ohio R. R.
Beaumont, Texas.....W. O. SoRalle, (President), Atchison, Topeka & Santa Fe Ry.
Binghamton, N. Y.....W. C. Lewis (President), Erie R. R.
W. A. Rowe (Secretary), Delaware, Lackawanna & Western R. R.
Birmingham, Ala.....C. J. Thompson (President), Birmingham Belt R. R.
R. N. Griffin (Secretary), Louisville & Nashville R. R.
Bloomington, Ill.....M. C. Boyce (President), Cleveland, Cincinnati, Chicago & St. Louis R. R.
C. E. Clarke (Secretary), Chicago & Alton R. R.
Boston, Mass.....W. P. Barber (President), Boston & Maine R. R.
Bradford, Pa.....J. R. Collins (President), Erie R. R.
W. R. Chase (Secretary), Erie R. R.
Buffalo, N. Y.....F. H. Meahl (President), New York Central R. R.
H. H. Barley (Secretary), New York Central R. R.
Cairo, Ill.....J. D. Ladd (President), Illinois Central R. R.
J. C. Boland (Secretary), Cleveland, Cincinnati, Chicago & St. Louis R. R.
Calgary, Alta., Can.....
Canton, Ohio.....O. L. Frederick (President), Pennsylvania System.
Charleston, S. C.....Frank McCabe (President), Southern Ry.
H. G. Gleiber (Secretary), Seaboard Air Line Ry.
Chattanooga, Tenn.....W. C. Sheppard (President), Southern Ry.
Chicago, Ill.....E. O. Burton (President), Chicago Junction Ry.
J. C. MacFadzean, O. & S. Bureau.
Chicago Heights, Ill.....E. Ruble (President), Baltimore & Ohio Chicago Terminal R. R.
R. M. Black (Secretary), Elgin, Joliet & Eastern R.R.
Cincinnati, Ohio.....J. A. Bevis (President), Cleveland, Cincinnati, Chicago & St. Louis R. R.
W. C. Cooder (Secretary).
Cleveland, Ohio.....B. R. Brenan (President), Cleveland, Cincinnati, Chicago & St. Louis R. R.
J. M. Moyer (Secretary), New York, Chicago & St. Louis R. R.
Colorado Springs, Col...A. E. Ford (President), Atchison, Topeka & Santa Fe Ry.
Ed. Carey (Secretary), Chicago, Rock Island & Pacific Ry.
Columbia, S. C.....B. F. Newman (President), Southern Ry.
C. V. Hall (Secretary), Atlantic Coast Line R. R.
Columbus, Ohio.....H. M. Patton (President), Cleveland, Cincinnati, Chicago & St. Louis R. R.
C. H. Brown (Secretary), Pennsylvania System.
Council Bluffs, Ia.....J. T. Kiely (President), Chicago, Rock Island & Pacific R. R.
Dayton, Ohio.....E. E. Moore (President), Cleveland, Cincinnati, Chicago & St. Louis R. R.
W. W. Sanders (Secretary), Erie R. R.

Dallas, Texas	J. C. Webb (President), Texas & Pacific R. R. L. W. Mosker (Secretary), Missouri, Kansas & Texas R. R.
Denver, Colo	C. W. Loomis (President), Chicago, Burlington & Quincy R. R. W. A. Knerr (Secretary), Denver & Rio Grande R. R.
Des Moines, Iowa	A. L. Johnson (President), Chicago, Burlington & Quincy R. R. W. S. Hawkins (Secretary), Western Weighing and Inspection Bureau.
Detroit, Mich	E. A. Mason (President), Grand Trunk Ry. H. A. Anderson (Secretary), O. S. & D. Bureau.
Dubuque, Iowa	J. P. Whelan (President), Chicago, Milwaukee & St. Paul Ry. D. Ahern (Secretary), Western Weighing and Inspection Bureau.
Duluth-Superior	J. E. Watt (President), Duluth & Iron Range R. R. A. E. Piering (Secretary), Northern Pacific Ry.
Easton, Pa.—Phillipsburg, N. J	E. B. Zellers (President), Lehigh & Hudson River R. R. A. M. Yeisley (Secretary), Lehigh Valley R. R.
Elmira, N. Y	C. N. Ellis (President), Pennsylvania System. F. W. Rodgers (Secretary), Delaware, Lackawanna & Western R. R.
Erie, Pa	G. A. Cone (President), New York Central R. R. B. Dean (Secretary), New York, Chicago & St. Louis R. R.
Eau Claire-Chippewa Falls, Wis	W. A. Eberside (Secretary), Chicago, Milwaukee & St. Paul Ry.
Evansville, Ind	H. Helmbock (President), Southern Ry. S. A. Ensner (Secretary), Southern Weighing and Inspection Bureau.
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Ft. Dodge, Iowa	T. W. LaSoell (President), Chicago Great Western R. R. J. L. Schroer (Secretary), Western Weighing and Inspection Bureau.
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C. E. Davies, General Traffic Superintendent, Canadian National Rys.
E. E. Dildine, Superintendent of Telegraph, Northern Pacific Ry.
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J. H. Brennan, Superintendent of Telegraph, St. Louis-San Francisco Ry.
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A. W. Beauprie (Vice-Chairman), Assistant Superintendent Telegraph, Southern Railway System.

E. V. Adams, Railway Sales Engineer, Western Electric Co., Inc.
C. E. Baxter, Telegraph and Telephone Engineer, Michigan Central R. R.
E. C. Bowman, Engineer of Transmission, American Telephone and Telegraph Co.
J. H. Ditch, Chief Telephone Inspector, Eastern Region, Pennsylvania System.
B. F. Thompson, Telephone Engineer, Baltimore & Ohio R. R.

Committee No. 12

Radio and Wired Wireless

J. D. Jones (Chairman), Superintendent Telegraph and Signals, Eastern Region, Pennsylvania System.
A. R. Belmont (Vice-Chairman), Assistant Engineer, Boston & Albany R. R.
A. H. Armstrong, Chairman, Electrification Committee, General Electric Co.
L. B. Foley, Superintendent Telephone, Telegraph and Wireless, Delaware, Lackawanna & Western R. R.
D. McNicol, Chairman, Telegraphy and Telephony Committee, American Institute of Electrical Engineers.
M. C. Rypinski, Manager, Radio Sales, Western Electric & Manufacturing Co.
D. Sarnoff, Commercial Manager, Radio Corporation of America.

Committee No. 13

Arrangements

R. F. Finley (Chairman), Superintendent Telegraph, New York Central R. R., Lines West of Buffalo.
J. A. Jones, Superintendent Telegraph, Southern Ry. System, Lines East.
B. A. Kaiser, Representative on Railway Relations, American Telephone & Telegraph Co.
E. C. Keenan, General Superintendent of Telegraph, New York Central Lines.
W. T. Kyle, Sales Manager, Page Steel and Wire Co.

DIVISION II—TRANSPORTATION

DIVISION II—TRANSPORTATION

The Transportation Division was organized on February 19, 1919, and included the activities of the former Committee on Relations between Railroads, of the American Railway Association, and the Association of Railway Transportation and Car Accounting Officers.

The duty of the Transportation Division is to consider and report upon questions affecting the efficient use and interchange of equipment.

Since the organization of the Division its activities have included:

Revision of the Code of Car Service Rules,

Revision of the Code of Per Diem Rules,

Revision of National Car Demurrage Rules,

Revision of Uniform Code of Storage Rules,

Revision of Rules for Handling Railroad Business Mail,

and among other important questions affecting the use and interchange of equipment which have been considered and recommendations made thereon are:

CAR SERVICE

Interpretations to Code of Car Service Rules.

Upon recommendation of the Committee on Car Service the General Committee approved a series of interpretations which have been promulgated to all roads by the Car Service Division.

Compensation for excess empty mileage created by orders of the Car Service Division and Service Orders of the Interstate Commerce Commission. —Circular 2058 effective September 1, 1920.

Responsibility for furnishing cars for loading in switching service—issued to member roads through the Car Service Division.

Report of Car Accumulations—issued through Car Service Division as Form CS 7.

Uniform System for filing embargoes; issued through Car Service Division—Circular CSD 87.

Uniform Method for Computing Average Miles per Car per day.

PER DIEM

Revision of Per Diem Forms.

Interpretations to Code of Per Diem Rules, and Decisions rendered by the Per Diem Rules Arbitration Committee.

Per Diem Rate.

Upon the recommendations of the General Committee the per diem rate was fixed at 90c., effective March 1, 1920, and increased to $1.00, effective November 1, 1920, as announced in Circular No. 2072.

Revised Per Diem and Mileage Rates on Passenger Equipment; effective October 1, 1920, as announced in Circular No. 2035.

Cancellation of Per Diem Reclaims and Discrepancy Claims during Guaranty Period; approved and made effective by issuance of Circular No. 2075, November 26, 1920.

Per Diem Settlements with Short Lines During Guaranty Period; approved and made effective through issuance of Circular No. 2074, November 26, 1920.

Uniform Method of Adjusting Switching Reclaims under Per Diem Rule 5; approved and issued in Circular No. S.V. 33, March 27, 1920.

Thirty-two Applications for admission to the Per Diem Agreement approved; Applications of 7 roads rejected.

Switching Reclaims Allowed Industrial Railroads.

A large number of switching roads have been checked under the supervision of the General Committee, to ascertain the average actual time required to handle cars in switch service, and reclaim to be allowed under Per Diem Rule 5 fixed on the basis of the time determined by the check.

DEMURRAGE AND STORAGE

Interpretations to Demurrage and Storage Rules.

Revision of Demurrage Forms.

Plan Covering Supervision of Demurrage and Storage Rules—Circular No. S.V. 38, July 1, 1920.

Uniform Application of Demurrage at Non-Agency Stations—issued in Circular No. S.V. 41, July 15, 1920.

FREIGHT HANDLING SERVICE

Creation of a Freight Container Bureau—recommendation approved by the Transportation Division, October 20, 1920.

Rules Governing the Handling, Securing and Care of Doors of Closed Cars—Circular No. S.V. 27, March 10, 1920.

Proper Method of Handling Return of Empty Cement Sacks—Circular No. S.V. 37, July 15, 1920.

Recommended Method for Loading Commodities Shipped in Barrels—illustrated circular approved and issued through Weighing and Inspection Bureaus.

RAILROAD BUSINESS MAIL

Abuse of Valuable Package Labels—Circular No. S.V. 26, March 10, 1920.

MISCELLANEOUS

Mileage Allowance on Privately Owned Freight Cars—approved and issued J. E. Fairbanks Freight Tariff No. 7-A, effective November 1, 1920.

Equalization of Loaded and Empty Mileage of Private Tank Cars—Approved by Interstate Commerce Commission as covered in Circular No. 2158 dated May 16, 1921.

Joint Agreement covering Settlement for Cars Destroyed in Mexico; Circular No. 2095, dated December 28, 1920.

Intensive Loading of Freight Cars as approved by Circular No. S.V. 32, March 18, 1920; discontinued Circular No. S.V. 68, February 15, 1921.

Standard Rules to Govern Icing of Refrigerator Cars—Circular No. S.V. 24, March 8, 1920.

The Division has brought up to date the list of assigned reporting marks for cars of railroad and private ownership.

Among the subjects now being considered by the Transportation Division are the following:

CAR SERVICE

Distribution of equipment to short line railroads.

Responsibility for cost of transferring perishable commodities when such transfer is necessary to protect the shipment from heat or cold.

Revision of the report of average daily surplus and deferred car requisitions.

PER DIEM

Graduated per diem rates.

Uniform method for the settlement of car hire with railroads which are not parties to the Per Diem Rules Agreement.

Revision of Per Diem Rule 15 to provide a uniform method and practice at interchange points where cars are held on account of receiving lines failure to accept.

Formula for determining switching reclaims under Per Diem Rule 5.

Revision of Per Diem Forms.

Establishment of joint inspection, interchange and seal records.

DEMURRAGE AND STORAGE

Proposed addition to Average Agreement which will require uniformity in the manner of arranging for credit as recommended by the Accounting Officers.

Request of the American Petroleum Institute for exemption from demurrage on private cars when held on private tracks.

Question of proper allowance on account of weather interference where cars are held under constructive placement or for surrender of bill-of-lading.

Application of demurrage charges on cars held at ports for trans-shipment by vessel.

Formulation of a rule to establish constructive placement of cars held for delivery on team tracks.

The Committee is in conference with representatives of the National Industrial Traffic League with the view of reaching an agreement on the following subjects:

(a) Proposed interpretation covering application of demurrage charges on cars held for loading or unloading by railroad crane or derrick.

(b) Uniform method for computing "run-arounds" under Demurrage Rule 8, Section E.

(c) Proposed addition to Demurrage Rule 4, Section E, to provide that telegraph notices of refusal shall be sent at shipper's expense.

(d) Formulation of circular calling attention to desirability of showing street or building address on notices of arrival sent to consignee in cities having free delivery service.

(e) Proposed additional note to Demurrage Rule 3 to govern method of computing time where forwarding directions are mailed from outlying sidings or non-agency stations.

(f) Proposed addition to Demurrage Rule 1 covering application of demurrage on cars held for loading coal from wagon mines.

(g) Formulation of circular relative to application of demurrage on cars loaded contrary to embargoes.

(h) Proposed addition to Demurrage Rule 2 to provide for the application of demurrage on coal removed from mines or mine sidings and held for weighing or disposition instructions.

(i) Changes in Storage Rules involving uniform rates and a new rule to cover ground storage on freight not subject to damage.

(j) Rules and charges to govern the use by private parties of railroad owned freight cars leased or assigned to industries for plant use.

RAILROAD BUSINESS MAIL

Revision of Instructions Governing the Handling of Railroad Business Mail.

FREIGHT HANDLING SERVICE

Revision of A. R. A. Code of Rules covering the Receipt, Stowing, Handling, and Delivery of Less-than-carload-freight.

Rules to govern inspection of cars before loading with freight subject to damage.

Uniform rules and regulations for the loading and placing of carload freight liable to damage.

Revision of charges for cleaning and disinfecting stock cars.

Uniform method to be adopted in delivery of astray freight.

MISCELLANEOUS

The Division has a number of miscellaneous subjects under consideration among which are the following:

Mileage allowance on privately owned freight cars.

Plan to reduce delay to individual cars in yards and terminals.

Publication of information concerning description and ownership of privately owned freight cars.

Rules governing the application, recording, and care of car seals.

The accompanying statement shows the organization of the Transportation Division:

DIVISION II—TRANSPORTATION

Officers

J. J. Bernet.....*Chairman*
W. A. Worthington.....*Vice-Chairman*
G. W. Covert.....*Secretary*

General Committee

C. W. Crawford (Chairman).
J. J. Bernet, President, New York, Chicago & St. Louis R. R.
W. A. Worthington, Vice-President and Assistant to Chairman, Southern Pacific Lines.
C. M. Sheaffer, Chief of Transportation, Pennsylvania System.
G. E. Evans, Vice-President—Operation, Louisville & Nashville R. R.
Howard G. Kelley, President, Grand Trunk Ry. System.
W. S. Andrews, Assistant to Vice-President, Southern Ry. System.
G. E. Simpson, General Supervisor of Transportation, Chicago, Milwaukee & St. Paul Ry.
C. H. Ewing, Vice-President, Philadelphia & Reading Ry.
J. A. Wagner, General Manager, Des Moines Union Ry.
T. H. Beacom, Vice-President and General Manager, Chicago, Rock Island & Pacific Ry.
P. E. Crowley, Vice-President, New York Central R. R.
W. C. Kendall, Manager, Railroad Relations Section, Car Service Division.

Committee on Nominations

Elisha Lee (Chairman), Vice-President, Pennsylvania System, Eastern Region.
W. J. Jackson, Receiver, Chicago & Eastern Illinois R. R.
R. D. Starbuck, Assistant to Vice-President, New York Central R. R.

Per Diem Rules Arbitration Committee

C. W. Crawford (Chairman).
J. J. Bernet, President, New York, Chicago & St. Louis R. R.
Howard G. Kelley, President, Grand Trunk Railway System.
W. S. Andrews, Assistant to Vice-President, Southern Ry. Lines.
W. A. Worthington, Vice-President and Assistant to Chairman, Southern Pacific Lines.

Committee on Demurrage, Storage, Reconsignment and Diversion

J. F. Porterfield (Chairman), General Superintendent Transportation, Illinois Central R. R.
A. L. Bergfeld, General Superintendent Transportation, Great Northern Ry.
T. F. Brennan, Vice-President, Buffalo, Rochester & Pittsburgh Ry.
J. F. Chalfant, Manager, Department of Demurrage Supervision, Trunk Line Territory.
A. G. Gutheim, Manager, Public Relations Section, Car Service Division.
F. M. Hardin, Manager, Southeastern Demurrage and Storage Bureau.
C. R. Moore, General Superintendent Car Service, Grand Trunk Ry. System.
E. S. Moore, Superintendent Transportation, Norfolk & Western Ry.
J. R. Pickering, Superintendent Transportation, Chicago, Rock Island & Pacific Ry.
M. W. Rotchford, Manager, Western Demurrage and Storage Bureau.
C. B. Strohm, Superintendent Transportation, Atchison, Topeka & Santa Fe Ry.
H. S. Bevan, Accounting Department, Eastern Region, Pennsylvania System.
F. E. Williamson, General Superintendent, New York Terminals, New York Central R. R.

Committee on Car Service

J. E. Roberts (Chairman), Superintendent Transportation, Delaware & Hudson Co.
N. D. Ballantine, Superintendent of Transportation, Union Pacific System.
J. Cannon, Assistant General Manager, Missouri Pacific R. R.
J. P. Driscoll, General Superintendent of Car Service, Canadian National Rys.
J. O. Holliday, Superintendent of Transportation, New York, New Haven & Hartford R. R.
C. E. Hix, Superintendent of Transportation, Seaboard Air Line Ry.
P. H. McCauley, General Superintendent of Transportation, Northern Pacific Ry.
W. J. McGarry, Manager, Open Car Section, Car Service Division.
J. W. Roberts, General Superintendent of Transportation, Northwestern Region, Pennsylvania System.
Geo. J. Ross, Superintendent Freight Transportation, New York Central R. R.
G. F. Richardson, Superintendent of Transportation, Southern Pacific Co.
D. E. Spangler, General Superintendent Transportation, Norfolk & Western Ry.
J. A. Somerville, General Manager, Texas & Pacific Ry.
H. B. Voorhees, General Manager, New York Terminal Lines, Baltimore & Ohio R. R.
G. L. Whipple, Superintendent of Transportation, Chicago, Milwaukee & St. Paul Ry.

Committee on Records

J. D. Altimas (Chairman), Assistant General Superintendent of Car Service, Canadian Pacific Ry.
E. M. Dewey, Car Accountant, Atlantic Coast Line R. R.
E. F. Gaylord, Car Accountant, Chicago, Burlington & Quincy R. R.
F. A. Hortter, Car Accountant, Boston & Maine R. R.
R. R. Harris, Superintendent Freight Transportation, Cleveland, Cincinnati, Chicago & St. Louis Ry.
E. T. Kennan, Superintendent Car Service, Eastern Region, Pennsylvania System.

J. W. Nowers, Car Accountant, Atchison, Topeka & Santa Fe Ry.
C. B. Packer, Car Accountant, Seaboard Air Line Ry.
M. L. Stone, Auditor of Equipment Service Accounts, Union Pacific System.
E. G. Trobaugh, Car Accountant, Missouri Pacific R. R.

Committee on Railroad Business Mail

H. L. Fairfield (Chairman), Manager, Baggage and Milk Traffic, Illinois Central R. R.
J. O. Apps, General Agent, Mail, Baggage and Milk Traffic, Canadian Pacific Ry.
Alexander Grant, Assistant to Vice-President, Southern Ry. System.
J. C. McCahan, Jr., Manager, Mail and Express Traffic, Baltimore & Ohio R. R.
D. C. Pettibone, Manager, Mail Traffic, Northern Pacific Ry.
S. M. Rankin, Assistant Chief of Transportation—Passenger, Pennsylvania System.
C. A. Searle, Manager, Mail, Baggage and Express Traffic, Chicago, Rock Island & Pacific Ry.
C. F. Smith, General Superintendent of Passenger Transportation, New York Central R. R.
H. W. Stanley, Receiver, Tennessee Central R. R.

Committee on Freight Handling Service

W. H. Gatchell (Chairman), Assistant to Vice-President, Southern Ry. Lines.
B. K. Dean, New York Central R. R.
F. W. B. Humes, Superintendent of Stations and Transfers, Eastern Region, Pennsylvania System.
G. C. Jones, Assistant to President, Grand Trunk Ry. System.
A. C. Kenly, Superintendent of Freight, Atlantic Coast Line R. R.
G. Marks, Assistant to General Manager, New York, New Haven & Hartford R. R.
C. G. Richmond, Superintendent of Stations and Transfers, Illinois Central R. R.
C. E. Taylor, Superintendent of Terminals, Atchison, Topeka & Santa Fe Ry.
G. B. Vilas, General Superintendent, Chicago & North Western Ry., (Eastern Lines).
R. B. Williamson, Superintendent of Claim Prevention, Missouri Pacific R. R.

DIVISION III—TRAFFIC

DIVISION III—TRAFFIC

The duty of the Traffic Division is to consider and report upon rules, regulations and practices (not including rates, fares or classification ratings) which affect the operation of the railroads in relation to the public.

The Traffic Division, while not embracing so large a membership as other Divisions, is in position, by its close co-operation with all of the Traffic Associations throughout the country, to secure action with minimum delay upon such matters as require national consideration.

Among the questions now before the Traffic Division are:

Revision of rules governing the weighing of carload freight.

Revision of L. C. L. storage rules.

Mileage allowances on privately owned freight cars.

Various matters relating to better methods of packing and marking freight.

At the present time the officers and the Committees of the Traffic Division are as follows:

DIVISION III—TRAFFIC

Officers

G. H. Ingalls.....*Chairman*
J. Gottschalk.....*Secretary*

General Committee

G. H. Ingalls (Chairman), Vice-President, New York Central Lines.
G. D. Dixon, Vice-President, Pennsylvania System.
Gerrit Fort, Vice-President, Boston & Maine R. R.
F. Zimmerman, Vice-President, Chicago, Indianapolis & Louisville Ry.
L. J. Spence, Director of Traffic, Southern Pacific Co.
H. M. Adams, Vice-President, Union Pacific System.
S. G. Lutz, Vice-President, Chicago & Alton R. R.
C. E. Perkins, Vice-President, Missouri Pacific R. R.
Lincoln Green, Vice-President, Southern Ry.
R. A. Brand, Vice-President, Atlantic Coast Line R. R.
J. L. Edwards, Vice-President, Atlanta, Birmingham & Atlantic Ry.
F. B. Bowes, Vice-President, Illinois Central R. R.

Committee on Standard Containers, Packing and Marking

R. C. Fyfe (Chairman), Chairman, Western Classification Committee.
F. C. Maegly, Assistant General Freight Agent, Atchison, Topeka & Santa Fe Ry.
R. G. Fagan, Assistant Freight Claim Agent, Southern Pacific Lines.
James Menzies, Freight Traffic Manager, Atlantic Coast Line R. R.
F. W. Smith, Chairman, Official Classification Committee.
J. E. Crosland, Chairman, Southern Classification Committee.

Committee on Weighing and Inspection of Freight Traffic

A. S. Dodge (Chairman), Superintendent, Western Weighing and Inspection Bureau.
George Merki, Manager, Central Weighing and Inspection Bureau.
W. R. Sheehan, Manager, Transcontinental Weighing and Inspection Bureau.

A. B. Cade, Manager, Transcontinental Weighing and Inspection Bureau.
I. G. Markey, Manager, Southern Weighing and Inspection Bureau.
W. J. Edwards, Manager, Trunk Line Freight Inspection Bureau.
F. E. Dewey, Manager, New England Weighing and Inspection Bureau.
G. C. Ransom, Chairman, Canadian Freight Association.

Committee on Car Service, Demurrage and Storage

Robert C. Wright (Chairman), General Traffic Manager, Pennsylvania System.
Fred. Zimmerman, Vice-President, Chicago, Indianapolis & Louisville Ry.
B. Campbell, Vice-President, New York, New Haven & Hartford R. R.
H. E. Pierpont, Traffic Manager, Chicago, Milwaukee & St. Paul Ry.
W. A. Rambach, Freight Traffic Manager, Missouri Pacific R. R.
G. W. Luce, Freight Traffic Manager, Southern Pacific Lines.
A. R. Smith, Vice-President—Traffic, Louisville & Nashville R. R.
D. W. Longstreet, Traffic Manager, Illinois Central R. R.
C. T. Airey, Vice-President and Traffic Manager, Central of Georgia Ry.

DIVISION IV—ENGINEERING

DIVISION IV—ENGINEERING

The Engineering Division was organized on February 20, 1919, and included the activities of the former Committee on Maintenance and the Committee on Electrical Working of the American Railway Association, the Railway Signal Association and committees of the American Railway Engineering Association. Its duty is to consider and report on methods affecting the location, construction and maintenance of railroads.

The Engineering Division is divided into three Sections as follows:

Construction and Maintenance Section.
Electrical Section.
Signal Section.

CONSTRUCTION AND MAINTENANCE SECTION

The activities of the Construction and Maintenance Section are carried on through the Standing and Special Committees of the American Railway Engineering Association. These Committees have been made Committees of the Engineering Division by action of the General Committee.

Work which has been completed by the Construction and Maintenance Section since its organization, is as follows:

1919

(a) Means for prevention or cure of water pockets in roadbed.
(b) Suggested diagram for organization and distribution of a ballast raising force of 77 men.
(c) Standard test for rail joint.
(d) Plans for split switches, split-switch fixtures, rigid frogs, spring rail frog.
(e) Definitions pertaining to buildings.
(f) Coaling stations.
(g) Dial scales.
(h) High platforms at passenger stations.
(i) Foaming and priming—water service.
(j) Instructions for care of water stations.
(k) Examination questions for care of boilers.
(l) Examination questions for care of internal combustion engines.
(m) Examination questions for care of electrically operated pumps.
(n) Specifications for creosote oil.
(o) Specifications for grade 2 creosote oil.
(p) Specifications for grade 3 creosote oil.
(q) Precautions to be followed in the purchase and use of creosote coal-tar solution.
(r) Analysis of creosote oils.
(s) Specifications for zinc-chloride.
(t) Method for determining the strength of zinc-chloride solution.
(u) Rules for the prevention of the spread of forest and field fires.
(v) Agreement for grade crossing.
(w) Specifications for the manufacture and installation of railroad track scales.

(x) Tolerances on master scales; replacement of master scales; installation of a master scale at Chicago by Bureau of Standards.

(y) Report on extent of use of frictionless rail and results obtained therefrom.

1920

(a) Proper depth of ballast.

(b) Form for cross-tie statistics.

(c) Specifications for carbon steel rails; rail sections for 90-lb., 100-lb., 110-lb., 120-lb., 130-lb., 140-lb., standard drilling of rails.

(d) Plans for frogs, switches and fixtures; specifications for design and dimensions of manganese steel-pointed switches; for cut-track spike; for screw-track spike; for steel tie-plates; for wrought-iron tie-plates; for malleable iron tie-plates; for relayer rail for various uses.

(e) Lighting of passenger station interiors, surroundings and platforms; toilet facilities at small stations where water supply and sewers are lacking.

(f) Specifications for plain and reinforced concrete and for steel reinforcement; methods of depositing concrete under water.

(g) Approach warning sign on public highways.

(h) Forms for reporting progress in construction and maintenance work; for authority for expenditures; for monthly report of expenditures; final record of cost of work.

(i) Rules for inspection of bridges, trestles and culverts.

(j) Definitions of terms used in railway water service; water service organization; impounding reservoirs for railway purposes; water meters for railway water service; specifications for wooden water tanks; specifications for tank hoops.

(k) Rules for the location, maintenance, operation and testing of railway track scales.

(l) Specifications for steel railway bridges; column formula.

(m) Curve resistance—freight cars.

(n) Specifications for preservative treatment of wood—creosote oil and zinc-chloride; demarcation line between the use of creosoted and zinc-treated ties.

1921

(a) Instructions to govern ballasting on an operated line; specifications for stone ballast; specifications for washed gravel ballast; specifications for ballast tools.

(b) Rail record forms.

(c) Form of lease agreement for industrial site.

(d) Roadway information signs.

(e) Specifications for cross and switch-ties.

(f) Rules and unit stresses for rating existing bridges, principles for detailed design of flashing, drainage, reinforcement and protection for water-proofing purposes.

(g) Method of disposing of waste water at water stations and keeping track free of ice; specifications for substructures of wood and steel for water tanks.

(h) Specifications and classification and grading rules for lumber and timber for construction and maintenance departments.

(i) Disintegration of concrete and corrosion of reinforcing material in connection with the use of concrete in sea water.

(j) Resistance of trains running between 35 and 75 miles per hour.

(k) Design of cut track spike; frog design; typical plans of turnouts, crossovers; slip switches, double crossovers and railroad crossings, including necessary fixtures; plans for clamp frogs.

(l) Subsidence and shrinkage of embankments.

(m) Manual of instructions for the guidance of engineering field parties; Manual of rules for the government of employes of the Maintenance of Way Department; science of organization.

(n) Economic transfer of bad order cars.

(o) Report on relative merits of metal versus wooden ties.

The present activities of the Construction and Maintenance Section are as follows:

Roadway Committee

1. Report on the methods employed and results secured in the treatment of sliding cuts and fills and soft spots in excavation and embankment.

2. Report on the relative economy and advantages of various methods of ditching earth cuts, cleaning and shaping roadway ditches, roadbed and ballast shoulders, with special reference to labor saving devices now in use, and the development of machinery for this purpose.

3. Report on excess costs of maintenance during the early period of operation.

Ballast Committee

1. Report on time and cost studies covering the application of ballast, giving special attention to the organization of the ballast gang, and particular reference to the organization of small emergency ballast gangs.

Tie Committee

1. Report on the economies of the use of various classes of cross-ties and various kinds of preservative treatment.

2. Report on the care of ties after distribution.

3. Report on classification of ties for various kinds of service.

4. Report on the effect of design and time plates and track spikes on the durability of cross-ties and report results of improperly protecting ties from mechanical wear.

Rail Committee

1. Report on details of manufacture and mill practice as they affect rail quality.

2. Report on the developments in methods of rail inspection.

3. Recommend designs of rail joints and bolts covering important dimensions affecting interchange of both.

4. Report on material for joint bars and methods of treatment.

5. Recommend sections for rails over 140-lb. per yard.

6. Study transverse fissures, with special reference to cause and elimination thereof.

Track Committee

1. Report on typical plans of turnouts, crossovers, slip-switches, double crossovers and railroad crossings and prepare detail plans for such work.

2. Submit plans and specifications for track tools.

3. Report on specifications and piece work schedules.

4. Plans and specifications for switch stands, switch lamps and switch locks.

5. Report on tests of tie plates subject to brine drippings and on the effect of brine drippings on track appliances.

6. Report on reduction of taper of tread of wheel to 1 in 38 and on canting the rail inward.

Buildings Committee

1. Report on specifications for buildings for railroad purposes.
2. Report on ice houses and icing stations.
3. Report on the general subject of floors for railway buildings.
4. Report on design of freight houses.

Wooden Bridges and Trestles Committee

1. Report on various types of wooden trestles for the purpose of recommending two or three standards adaptable for general railway use, including multiple story frame trestles and ballast deck trestles.
2. Report on the best method of fireproofing wooden bridges and trestles.

Masonry Committee

1. Report as to the practical application of specifications relating to design of concrete and reinforced concrete structures.
2. Report on the developments in the art of making concrete.
3. Report on failures of concrete structures.
4. Report on the distribution of loads through ballast and embankment as affecting the design of masonry structures.

Signs, Fences and Crossings Committee

1. Report on the location of signs, including consideration of safety of employes using the roadway.
2. Submit specifications for highway grade crossings.
3. Report on the various substitutes for wooden crossing planks for highway crossings and city streets.
4. Make revised study of the relative economy of steel, wood and concrete fence posts, submitting the information in such form that relative economy can be determined on varying prices for the several kinds of posts, including statement of use of and results obtained from concrete posts by railroads.

Records and Accounts Committee

1. Report on cost keeping methods and statistical records.
2. Submit forms for recording data for keeping up to date valuation of property of railroads as required by Valuation Order No. 3, second revised issue.
3. Report on the feasibility of reducing the number of forms used in the engineering and maintenance of way departments, combining forms and simplifying those retained.
4. Study methods for recording and accounting for the determination of proper allowances for maintenance of way expense due to increased use and increased investment.

Rules and Organization Committee

1. Report rules for conduct of bridge and building, signal, and telegraph and telephone work.
2 Report on use of mechanical appliances and tools, with organization of labor involved, in maintenance of way work.

Water Service Committee

1. Report on specifications for contracting water service work.
2. Report on pitting and corrosion of boiler tubes and sheets, character of metal, methods of manufacture, construction of boilers and quality of water considered.
3. Report on specifications for the various chemicals used in water treatment.

Yards and Terminals Committee

1. Report on unit operation of railroad terminals in large cities.
2. Report on passenger station, freight house and grain weighing scales.
3. Report on handling freight on two-track level freight houses and team tracks, also multiple story freight houses and handling freight by mechanical means, including the relative advantages and disadvantages of the use of freight houses as warehouses in connection with l. c. l. freight houses.
4. Report on classification yards, including methods of switching from classification yards to advance yards.
5. Report on economic transfer of lading of bad order cars in large terminals by the introduction of mechanical means or otherwise.

Iron and Steel Structures Committee

1. Specifications for erection of steel railway bridges.
2. Specifications for movable railway bridges.
3. Report on classification of bridges.
4. Report on specifications for turntables and turntable pits.
5. Report on electrical welding of connections in steel structures.

Economics of Railway Location Committee

1. Report the effect of curvature on the cost of maintenance of way and the maintenance of equipment.
2. Report on the economics of railway location as affected by the introduction of electric locomotives.
3. Report on suitable units for comparing costs of maintenance of way, equipment and transportation.
4. Report on methods of estimating power, speed, time and fuel consumption.

Wood Preservation Committee

1. Report on service test records, extending them to include treated timbers in bridges, docks and wharves and including a study of the records of service given by the zinc chloride treatment.
2. Report on treatment to be used in the protection of piles and timbers in water infected by marine borers.
3. Report on preservative treatment to be used on piles and timbers in land construction.
4. Recommend proper methods for storing lumber and piling for air-seasoning preliminary to preservative treatment.

Uniform General Contract Forms Committee

1. Submit forms of agreements for private road crossings; for purchase of electricity; for the sale of electricity; to cover joint use of passenger station; to cover joint use of freight station; for trackage rights; private crossings at grade.

Economics of Railway Operation Committee

1. Report on methods for increasing the traffic capacity of a railway.
2. Report on the effect of speed of trains upon the cost of operation.
3. Report on methods for analysing costs for the solution of special problems with which this committee is concerned.
4. Report on the feasibility and economy of through routing of solid trains and its effect in the capacity of terminals.
5. Report on the economical operation of trains against the current of traffic on multiple track railroads.
6. Study of methods for the determination of proper allowances for maintenance of way expenses due to increased use and increased investment.

Economics of Railway Labor Committee

1. Report on plans and methods for obtaining railway labor.

2. Report on methods for training and educating employes in engineering and maintenance of way work.

3. Report on standard methods for performing maintenance of way work for the purpose of establishing units of measure of work performed.

Shops and Locomotive Terminals Committee

1. Report on ash pits.

2. Report on engine house and power plants and shop extension.

3. Reports on designs of car shops.

4. Report on design for coaling stations.

5. Report on typical layouts for storage and distribution of fuel oil, including fuel oil stations between terminals.

6. Report on storehouses.

Stresses in Railroad Track

The work of the Special Committee on Stresses in Railroad Track in 1919, involved the study of the data of tests made in the early part of that year and in previous years and the formulation of a report, which after careful discussion and consideration by the Committee was presented under date of November 26, 1919, as the Second Progress Report of the Committee on Stresses in Railroad Track, and was printed in Circular No. S-II-10, American Railway Association (170 pages). Tests of track under the action of locomotives had been made on the Illinois Central Railroad and the Chicago, Milwaukee & St. Paul Railway in Illinois and the St. Louis-San Francisco Railway in Missouri. In these tests the stresses developed in the rail with several types of locomotive run at various speeds were measured. The tests brought out the fact that the effect of speed and counterbalance of locomotive on the rail (and therefore the effect on the track itself in relation to its maintenance), while large and warranting consideration, was not excessive with locomotives that were fairly well counterbalanced; in the case of improperly balanced locomotives the effect on the track was very pronounced, resulting in great damage to rail at high speeds and seriously affecting track maintenance at more moderate speeds. The determination and comparison of the stresses produced in the rail with locomotives having different spacing of drivers and relatively different wheel loads were carried on in the manner outlined in the first progress report of the Committee. The measurement of the depression of the track under load has given additional information on the quality and stiffness of track of different kinds of construction and also of its action under different loads. The study made of the bending and the depression of ties in track under load should be of assistance in the discussion of tie dimensions and of the effect of good and poor track maintenance. The analytical and experimental study of the transmission of pressure through ballast gives information of value in establishing the proper depth of ballast and in making comparison of different kinds of ballast.

During the season of 1920, field tests were conducted on the tracks of the Illinois Central Railroad in Illinois, the Delaware, Lackawanna and Western Railroad in New Jersey, and the Atchison, Topeka and Santa Fe Railway in New Mexico and Iowa. The tests were made on tangent track and curved track, different curvatures being used. A principal purpose of the tests was to find the effect of curvature of track upon the stresses in the rail (including the lateral bending stresses) caused by locomotives of different types run at different speeds, as compared with the stresses developed in straight track. Several types of locomotives were used—Pacific, Mountain, Santa Fe, Mikado, Ten-Wheeler, etc. Work of a preliminary nature was also done to find the effect of the flat spots of wheels upon the stress in the rail. A large amount of data was accumulated. The reduction of the data has involved among other things the making of more than 400,000 readings with the microscope. Good progress

has been made in the reduction of the data and the results will be ready for study by the Committee in the near future. It is expected that the results will give information of value. Laboratory tests are being carried on to find the method of action of various rail joints and to learn the amount of the stresses that are produced by wheel loads. The Committee has also in hand the preparation of a report giving the principal findings resulting from the tests already reported, with the thought that the findings of the Committee may well be presented separately from the technical matter given in its reports.

The Committee has a number of other questions under consideration.

Work which has been completed by the Electrical Section since its organization is as follows:

ELECTRICAL SECTION

1919

(a) Railroad specifications for electric light, power supply and trolley lines crossing steam and electric railways.

1921

(a) Railroad specifications for insulated wires and cables; Railroad specifications for underground conduit construction for power cables.

The former Committee on Electrical Working of the American Railway Association recommended Diagram of Limiting Clearance Lines for Third Rail and Permanent Way Structures and Rolling Equipment; Diagram of Overhead Working Conductor Clearances; Inspection Diagram of Third Rail Working Conductor Clearances, all of which were duly approved by the American Railway Association and issued as recommended practices.

The present activities of the Electrical Section are as follows:

Electricity Committee

1. Report on electrical interference with telephone and telegraph lines caused by propulsion circuits, including recommendation for eliminating as far as practicable, interferences with signal and telephone and telegraph lines caused by propulsion circuits and adjacent transmission lines.

2. Report on the utilization of water power for electric railway operation, cooperating with the United States Geological Survey in its "Superpower Survey" and with the "Water Power League of America."

3. Report on electrolysis and its effect in reinforced concrete and on methods of insulation and guarding against electrolysis.

SIGNAL SECTION

The Signal Section includes the Railway Signal Association, which was organized on March 11, 1895.

Among the important subjects considered by the Railway Signal Association and upon which recommendations have been promulgated are the following:

1. The equipment for high and low power generating stations for the operation of the various signaling systems to produce efficiency in operation and to guarantee constant source of supply for train service.

2. Automatic block signal systems for steam railways for all types of propulsion for the proper spacing of trains and safe guarding of tracks.

3. Primary and storage battery systems for operation of the various types of signals and track circuits. Generally speaking, to guarantee safety, efficiency and economy in operation, batteries are placed at individual locations to anticipate interruptions in the source of supply and unnecessary stoppage of trains at two or more signal locations due to these interruptions.

4. Supplying of insulation on wires and cables for both underground and overhead use to meet the special conditions involved on account of the many conditions such as the presence of salt brine, acids or similar conditions in the earth and fumes and gas from manufacturing industries in the vicinity of overhead line wires. Insulation of wire requires a special study and it has been frequently demonstrated that with the formulae employed, when adverse conditions come about such as tornadoes, hurricanes, floods, etc., and the wire is unbroken, the signal service is uninterrupted.

5. The requirements of the service have made it necessary to develop special grades of glass for jars which contain the various solutions for providing electricity. They are now standardized and in use for primary and storage battery purposes.

6. Glass lenses, roundels, and hand lantern globes of all colors, and globes for long-time burning lamps have been developed to meet daylight and night train operating conditions for displaying safe indications or aspects to the engineer, making available for him under all weather conditions the information at the signaling point. Much scientific research work has been undertaken in order to accomplish a transmission of light rays produced at a minimum cost at the source in the lantern to a sufficient distance from the signal location to make the light always serviceable.

7. Treatment of insulated wires on coils and windings of magnets to prevent their short circuiting due to moisture and other means which would prevent their constant operation.

8. A uniform system of signaling by semaphore arms, color of signals and position of signals, both day and night for the display of proper information to engineers.

9. Complete systems of assembly of all known types of mechanical and electrical devices called interlockers for the control of switches and signals at grade crossings, junctions, yards and similar places to reduce the operation of these units by man power at the point of operation.

10. Standardization of lamps or lanterns for highway crossing gate signals and train or engine markers.

11. Apparatus to protect against destruction by lightning of electric apparatus commonly known as lightning arresters.

12. Supplying by specification of oil for lubricating and illuminating purposes to insure lubrication under all climatic and weather conditions and constant light at a minimum expenditure for oil and manual labor in replenishment. These specifications have resulted in making such supply available from many sources, making it possible to buy in small quantities with a very pronounced reduction in cost.

13. Insulating compounds such as petrolatum for the insulation and protection under adverse conditions, underground, for the various wires and cables used in signaling systems.

14. An arrangement for the protection of railroad traffic at draw or movable bridges.

15. A number of types of apparatus known as relays for the signaling systems to automatically supply the various conditions produced by train operation. This apparatus is almost exclusively to give the control of the signal indication under all conditions under which the engineman operates.

16. A system of signs to supplement the signal indications for use by enginemen to advise them of the approach to curves, drawbridges, slow track, take-side track, etc.

17. Many detail drawings or designs of mechanical and electrical appliances required for signal systems. These designs or drawings have produced considerable saving in expense primarily to construction details in the shop, assembly, application and further in the matter of reducing the number of parts to produce the same information. A prominent example of this reduction is that there are but three universal applications of a casting known as a spectical holding the glass giving the night indication, as well as

a blade for the day indication to the engineman. There were formerly in the vicinity of 100 such designs.

18. Standards have been established for the determination, by test, from instruments developed and methods of application for finding defects in insulation or wrong operating conditions in mechanical parts.

19. Committees meeting at convenient centers readily accessible for several railroads for purely educational purposes are held as frequently as consistent with the freedom by which men can be absent from their work, to participate in debates for the advancement of the art of signaling. These meetings very frequently have over 300 persons in attendance and much good is accomplished from an educational standpoint in the line of details of operation and maintenance and the theory of the signaling work.

On the recommendation of the Signal Section, the following specifications, standard designs, etc., have been adopted:

Specification for Alternator.
Specifications for Alternating Current Automatic Block Signal System.
Specifications for type "A" Caustic Soda Primary Cells and Renewals.
Specification for Concrete Battery Box.
Specification for Lead Type Portable Storage Battery for Signaling.
Specification for Aerial Braided Cable for 660 Volts or less.
Specification for Rubber Insulated Armored Submarine Cable for 660 Volts or less.
Specification for Armored Submarine Cable for 2200 Volts.
Specification for Lead Covered Cable for 660 Volts or less.
Specification for Lead Covered Cable for 2200 Volts.
Specification for Underground Braided Cable for 660 Volts or less.
General Electrical Requirements.
General Provisions for use in Major Specifications.
Specification for Impedance Bond.
Specification for Petrolatum for use in Impedance Bond.
Specification for Air-Cooled Reactor for Line and Track Circuits.
Specification for Alternating Current Relay.
Specification for Tractive Armature Direct Current Neutral Relays.
Specification for Resistor for Line and Track Circuit.
Specification for Alternating Current Motor Semaphore Signal.
Standard Sections for use in Unit Specifications.
Specification for Friction Tape.
Specification for Single-Phase, Air-Cooled Track Transformer.
Specification for Single-Phase, Line Transformer, Oil-immersed, Self-Cooled.
Specification for Mineral Matter Rubber Compound Insulated Signal Wire for 660 Volts or less.
Table of Standard Ranges and Scales for Single Range Alternating Current Ammeters.
Instructions for Installation and Handling of Caustic Soda Batteries.
Specification for Primary Battery Jar.
Conclusions as to Methods of Control to Cause Signals to Indicate Stop in Emergencies.
Specification for Universal Switch Circuit Controllers.
Specification for Renewable Cartridge Fuses.
Specification for Alternating Current Indicator or Repeater.
Requisites for Mechanical Interlocking Machine.
Specification for Mechanical Interlocking Machine, Improved Saxby and Farmer Locking.
Specification for Power Interlocking Machine.
Specification for Universal Electric Lock for Hand Operated Switches.
Specification for Electric Lock for Interlocking Machines.

Mechanical Machine Lever Locking.
Questions and Answers for Signal Maintainers.
Specification for Direct Current Motor Operated Fuse Range Voltage High Signal Mechanism.
Specification for Electric Motor Switch Operating and Locking Mechanism.
Specification No. 5001-Zero Fahrenheit Lubricating Oil.
Specification No. 5002-45° Below Zero Fahrenheit Lubricating Oil.
Specification for Electric Position Light Signal.
Specification for Electric Color Light Signal.
Rules for the Setting of Time Releases Applied to Signal or Switch Apparatus.
Specification for Switchboard. (A. C. Signal System.)
Instructions for Installation and Operation of Switchboards.
Specifications for Portable Direct Current Volt-ammeters.
Table of Standard Ranges and Scales for Alternating Current Voltmeters.
Specifications for Copper Bond Wire.
Railroad Specifications for Electric Light, Power Supply and Trolley Lines Crossing Steam and Electric Railways.
Specifications for Wire Joints.
Drawing 1000—Crank and Jaw Pins.
Drawing 1014—One-Way Horizontal Pipe Compensator.
Drawing 1018—One-inch Signal Pipe and Coupling.
Drawing 1058—Round Jars and Covers.
Drawing 1082—Mechanical Semaphore Bearing-Details.
Drawing 1084—Pipe Carrier, Assembly.
Drawing 1085—Details and Assembly of Pipe Carrier.
Drawing 1102—Compensation Chart.
Drawing 1194—Details and Assembly of Mechanical Semaphore Bearing.
Drawing 1220—Cross-arm Bolts—Galvanized.
Drawing 1224—Storage Battery Jars, Covers, Hold-Downs and Sand Trays.
Drawing 1343—Concrete Battery Box.
Drawing 1399—Low Target Stand.
Drawing 1299—Switch Point Drilling.
Drawing 1373—Gauge Plates, Insulated Rail Joint.
Drawing 1377—Test for Ground Resistance.
Drawing 1403—Branch Connection to Line Wire Double Cross-arm Support.
Drawing 1404—Branch Connection to Line Wire Single Cross-arm Support.
Drawing 1405—Weatherproof Insulated Iron Line Wire Joint.
Drawing 1406—Rubber Insulated Solid Copper Wire Joint.
Drawing 1407—Weatherproof Copper Line Wire Sleeve Type Joint.
Drawing 1408—Stranded Wire Joint.
Drawing 1409—Corners.
Drawing 1410—Branch Connection to Dead-Ended Line Wires Double Cross-arm Support.
Drawing 1414—Roundels for Signals.
Drawing 1419—Rectangular Jars and Covers.
Drawing 1428—Bonding of an Electric Railroad Crossing with Steam Railroad.
Drawing 1429—Bonding of an Electric Railroad Crossing with Steam Railroad.
Drawing 1436—Semaphore Lamp—2 Lens.
Drawing 1440—Switch Lamp, Spherical Type.
Drawing 1443—Switch Lamp Base-Socket.
Drawing 1442—Lens Hoods and Couplings for Switch and Semaphore Lamps.

Drawing 1443—Oil Fount.
Drawing 1449—Base for 4-inch Mast.
Drawing 1459—Staff Tip Adapter.
Drawing 1460—Switch Lamp (Cylindrical Type).
Drawing 1461—Switch Lamp Base Socket.
Drawing 1470—Train Marker Lamp.
Drawing 1480—Engine Signal Lamp.
Drawing 1496—Highway Crossing Gate and Slow Track Sign Lamp Hangers.
Drawing 1497—Highway Crossing Gate Lamp Fount and Lens Hoods.
Drawing 1498—Highway Crossing Gate Lamp Handle and Alignment Clamp.
Drawing 1499—Highway Crossing Gate Lamp.

The present activities of the Signal Section are as follows:

Specifications for Mechanical Interlocking.
Specification for Mechanical Interlocking Machine, Style "A" Locking.
Specification for Concrete Trunking, Capping and Supports.
Specification for Circuit Controller for Drawbridges.
Instructions for Making Shop Torque Tests at the Semaphore Shaft of Power-Operated Signals.
Information for calculating Power Supply and Distribution (A. C. Signal System).
Report on Requisites of Signal Locations for Automatic Block Signals.
Report on Application of Aspect Indicating that Train Must Take Siding at a Non-Interlocked Switch.
Specification for Primary Battery Jar.
Specification for Concrete Battery Box.
Form of Invitation to Bidders on Block Signal and Interlocking Work.
Form of Contractor's Proposal for Block Signal and Interlocking Work.
Form of Bond to accompany Contract for Block Signal and Interlocking Work.
Form of Contract for Block Signal and Interlocking Work.
Specification for Portable A. C. Ammeters.
Specification for Portable A. C. Voltmeters.
Drawing 1500—Machine leg for Interlocking Machine, Style "A" Locking.
Drawing 1501—Latch Shoe Details for Interlocking Machine, Style "A" Locking.
Drawing 1502—Latch Shoe Assembly for Interlocking Machine, Style "A" Locking.
Drawing 1503—Rocker Guider for Interlocking Machine, Style "A" Locking.
Drawing 1504—Lever Number Plate for Mechanical Interlocking Machines.
Drawing 1458—Cast Iron Washer for Three Quarter Inch Bolt.
Drawing 1452—Concrete Trunking, Capping and Supports.
Drawing 1453—Concrete Trunking and Capping Reinforcement.
Drawing 1457—Operating and Overload Curve Chart for Use with Specification for Universal Electric Motor Switch Operating and Locking Mechanism.
Drawing 1456—Torque Testing Apparatus.
Drawing 1034—Base for Ground Signal Masts.
Drawing 1182—Relay Boxes—Size "A" and "B".
Drawing 1183—Relay Box Details—Size "B".
Drawing 1184—Relay Box Details—Size "A".
Drawing 1358—Electric Lock Brackets for Applying Locks to Mechanical Interlocking Machines.

Drawing 1368—Relay Box Linings and Terminal Boards.
Drawing 1369—Relay Box Fittings.
Drawing 1412—Dwarf Signal—Mechanical Escapment Cranks and Blocking Shield.
Drawing 1425—Plunger Switch Lock.
Drawing 1426—Plunger Switch Lock—Details.
Drawing 1445—Switch Lamp Discs.
Drawing 1454—Gauge Plate—Insulated Lap Joint.

Subjects being considered by Committees which have not yet been reported to the Section Members:

Specifications for Electro Mechanical Interlocking Machine, Improved Saxby and Farmer Locking.
Specification for Electro Mechanical Interlocking Machine, Stevens Locking.
Specification for Mechanical Connections.
Specification for Concrete Foundations.
Specification for Concrete Bell Post.
Specification for Concrete Relay Post.
Specification for Circuit Controller for Interlocking Machine, Improved Saxby and Farmer Locking.
Specification for Circuit Controller for Interlocking Machine, Stevens Locking.
Drawings and charts for standardization of:
(a) Bolts, screws, pins and dowels for interlocking machine, improved, S. & F. locking.
(b) Bolts, screws, pins and dowels for interlocking machine, Stevens locking.
Specification for Time Releases.
Specification for Time Locks.
Specification for Wiring for Electric Interlocking.
Specification for Installation of fibre conduit.
Specification for Signal Installations.
Specification for Channel Pins.
Specification for Hard Fibre.
Standard designs.
Instructions for maintenance of stationary and portable storage battery.
Best types of electric lamps for signal work.
Pipe thread standardization.
Screw thread standardization.
Specification for Indicators.
Specification for Annunciators.
Specifications for main power supply for block signaling and interlocking.
Instructions for the care of A. C. signal apparatus.
Specification for oil base compound rubber-insulated signal wire for 660 volts or less.
Specification for storage battery jars—R. S. A. 1224.
Specification for Electrical testing instruments and adjustable resistance used for testing.
Protecting signal apparatus against lightning.
Specification for illuminating oil, with view of raising standard requirements.
Specification for Motor gasoline and transformer oil.
Specification for rail bonding.

The accompanying statement shows the organization of the Engineering Division:—

DIVISION IV—ENGINEERING

Officers

L. A. Downs..... *Chairman*
F. B. Wiegand..... *Vice-Chairman*
E. H. Fritch..... *Secretary*

CONSTRUCTION AND MAINTENANCE SECTION

Officers

L. A. Downs..... *Chairman*
E. H. Fritch..... *Secretary*

Committee I

Roadway

J. R. W. Ambrose (Chairman), Chief Engineer, Toronto Terminals Ry.
C. M. McVay (Vice-Chairman), Division Engineer, Kanawha & Michigan R. R.
A. S. Butterworth, Chief Engineer, Gulf, Florida & Alabama Ry.
E. J. Bayer, Engineer Maintenance of Way, Cleveland, Cincinnati, Chicago & St. Louis Ry.
C. W. Brown, Superintendent, Lehigh & New England R. R.
H. W. Brown, Division Engineer, Pennsylvania System.
R. K. Brown, Superintendent and Chief Engineer, Salt Lake & Utah Ry.
C. C. Cunningham, Division Engineer, Chicago, Rock Island & Pacific Ry.
W. C. Curd, Consulting Engineer.
C. A. Daley, Division Engineer, Erie R. R.
S. B. Fisher, Engineering Department, Missouri, Kansas & Texas Ry.
R. D. Garner, Engineer Construction, Southern New England R. R.
R. C. Gowdy, Chief Engineer, Colorado & Southern Ry.
F. M. Graham, Engineer Maintenance of Way, Southwestern Region, Pennsylvania System.
H. Hawgood, Consulting Engineer.
E. G. Hewson, Division Engineer, Grand Trunk Ry.
W. M. Jaekle, Assistant Engineer Maintenance of Way and Structures, Southern Pacific Co.
A. A. Matthews, Chief Engineer, St. Louis Southwestern Ry.
W. H. Penfield, Engineer Track Maintenance, Chicago, Milwaukee & St. Paul Ry.
P. Petri, Division Engineer, Baltimore & Ohio R. R.
Frank Ringer, Chief Engineer, Missouri, Kansas & Texas Ry.
R. B. Robinson, Engineer Maintenance of Way, Union Pacific R. R.
R. A. Rutledge, District Engineer, Atchison, Topeka & Santa Fe Ry.
G. L. Sitton, Engineer Maintenance of Way, Southern Ry.
E. G. Taber, Chief Engineer, Spokane Internatioal Ry.
H. E. Tyrrell, Engineer Maintenance of Way, Southern Ry.
C. E. Weaver, Engineer Maintenance of Way, Central of Georgia Ry.
W. H. Woodbury, Valuation Engineer, Duluth & Iron Range R. R.
J. C. Wrenshall, Jr., Division Engineer, Philadelphia & Reading Ry.

Committee II

Ballast

F. J. Stimson (Chairman), Chief Engineer Maintenance, Southwestern Region, Pennsylvania System.
G. H. Harris (Vice-Chairman), Engineer Maintenance of Way, Michigan Central R. R.
C. W. Baldridge, Assistant Engineer, Atchison, Topeka & Santa Fe Ry.
O. F. Barnes, Division Engineer, Erie R. R.

Theo. Bloecher, Jr., Division Engineer, Baltimore & Ohio R. R.
H. E. Boardman, Engineering Assistant to General Valuation Counsel, New York Central Lines.
R. R. Bragg, Division Engineer, Chicago, Rock Island & Pacific Ry.
C. J. Coon, Engineer of Track, Grand Central Terminal.
C. E. Dare, Supervisor, Washington Southern Ry.
M. H. Doughty, Division Engineer, Delaware, Lackawanna & Western R. R.
Paul Hamilton, Engineer Track and Roadway, Cleveland, Cincinnati, Chicago & St. Louis Ry.
A. G. Holt, Assistant Chief Engineer, Chicago, Milwaukee & St. Paul Ry.
F. A. Jones, Division Engineer, Missouri Pacific R. R.
J. S. McBride, Valuation Engineer, Chicago & Eastern Illinois R. R.
H. R. Pratt, Engineer Maintenance of Way and Structures, Western Maryland Ry.
F. R. Ramsey, Chief Engineer, Toledo, St. Louis & Western R. R.
H. L. Ripley, Valuation Engineer, New York, New Haven & Hartford R. R.
Hans Schantl, Engineer Maintenance of Way, Mississippi River & Bonne Terre R. R.
M. A. Stainer, District Engineer, Fort Worth & Denver City R. R.
Paul Sterling, Assistant Engineer Maintenance of Way, New York, New Haven & Hartford R. R., Lines West.
D. W. Thrower, Valuation Engineer, Illinois Central R. R.
P. H. Winchester, Division Engineer, New York Central R. R.
Lee Winship, Division Engineer, Missouri Pacific R. R.

Committee III

Ties

W. A. Clark (Chairman), Chief Engineer, Duluth & Iron Range R. R.
W. J. Burton (Vice-Chairman), Assitant Valuation Engineer, Missouri Pacific R. R.
H. A. Anderson, Assistant Engineer, Southern Pacific Co.
W. C. Baisinger, Roadmaster, Atchison, Topeka & Santa Fe Ry.
M. S. Blaiklock, Engineer Maintenance of Way, Grand Trunk Ry.
F. Boardman, Division Engineer, Electric Division, New York Central R. R.
E. W. Boots, Engineer Maintenance of Way, Pittsburgh & Lake Erie R. R.
H. A. Cassil, Engineer Maintenance of Way, Pere Marquette Ry.
F. W. Cherrington, Chief Engineer, Jennison-Wright Co.
S. B. Clement, Chief Engineer, Temiskaming & Northern Ontario Ry.
E. L. Crugar, District Engineer, Illinois Central R. R.
J. F. Deimling, Assistant Chief Engineer, Michigan Central R. R.
John Foley, Forester, Pennsylvania System.
O. H. Frick, District Engineer, Chicago, Milwaukee & St. Paul Ry.
G. F. Hand, General Assistant Engineer, New York, New Haven & Hartford R. R.
H. C. Hayes, Assistant Engineer, Illinois Central R. R.
F. R. Layng, Engineer of Track, Bessemer & Lake Erie R. R.
R. M. Leeds, Roadmaster, Louisville & Nashville R. R.
A. F. Maischaider, Engineer Maintenance of Way, Cleveland, Cincinnati, Chicago & St. Louis Ry.
A. J. Neafie, Principal Assistant Engineer, Delaware, Lackawanna & Western R. R.
G. P. Palmer, Engineer Maintenance and Construction, Baltimore & Ohio Chicago Terminal R. R.
L. J. Riegler, Assistant Engineer, Pennsylvania System.
Lowry Smith, Assistant District Engineer, Northern Pacific Ry.

Committee IV

Rail

G. J. Ray (Chairman), Chief Engineer, Delaware, Lackawanna & Western R. R.
J. M. R. Fairbairn (Vice-Chairman), Chief Engineer, Canadian Pacific Ry.

E. E. Adams, Assistant to President, Union Pacific System.
A. S. Baldwin, Vice-President, Illinois Central R. R.
W. C. Barnes, Field Engineer, United States Railroad Administration.
W. C. Cushing, Engineer Standards, Pennsylvania System.
Dr. P. H. Dudley, Consulting Engineer, New York Central Lines.
C. F. W. Felt, Chief Engineer System, Atchison, Topeka & Santa Fe Ry.
L. C. Fritch, Vice-President, Chicago, Rock Island & Pacific Ry. and Minneapolis & St. Louis Ry.
J. H. Gibboney, Chief Chemist, Norfolk & Western Ry.
A. W. Gibbs, Chief Mechanical Engineer, Pennsylvania System.
C. R. Harding, Assistant Consulting Engineer, Southern Pacific Co.
John D. Isaacs, Consulting Engineer, Southern Pacific Co.
Howard G. Kelley, President, Grand Trunk Ry. System.
H. D. Knecht, Assistant Engineer, Missouri Pacific R. R.
R. Montfort, Consulting Engineer, Louisville & Nashville R. R.
A. W. Newton, Chief Engineer, Chicago, Burlington & Quincy R. R.
J. R. Onderdonk, Engineer of Tests, Baltimore & Ohio R. R.
F. S. Stevens, Engineer Maintenance of Way, Philadelphia & Reading Ry.
F. M. Waring, Engineer of Tests, Pennsylvania System.
M. H. Wickhorst, Engineer of Tests, Rail Committee.
J. B. Young, Chief Chemist, Philadelphia & Reading Ry.

Committee V

Track

W. P. Wiltsee (Chairman), Assistant Engineer, Norfolk & Western Ry.
J. V. Neubert (Vice-Chairman), Engineer Maintenance of Way, New York Central R. R.
L. B. Allen, Engineer Maintenance of Way, Chesapeake & Ohio Ry.
Victor Angerer, Vice-President, William Wharton, Jr. & Co., Inc.
J. B. Baker, Engineer Maintenance of Way, Pennsylvania System.
R. A. Baldwin, District Engineer, Canadian National Rys.
G. H. Bremner, District Engineer, Interstate Commerce Commission.
H. G. Clark, Assistant to President, Chicago, Rock Island & Pacific Ry.
E. A. Hadley, Chief Engineer, Missouri Pacific R. R.
G. W. Hegel, Chief Engineer, Chicago Junction Ry.
E. T. Howson, Western Editor, Railway Age.
T. T. Irving, Chief Engineer, Grand Trunk Ry., Western Lines.
H. A. Lloyd, Maintenance Inspector, Erie R. R.
J. de N. Macomb, Office Engineer, Atchison, Topeka & Sante Fe Ry.
F. H. McGuigan, Jr., Regional Engineer, U. S. Railroad Administration.
W. S. McFetridge, Principal Assistant Engineer, Bessemer & Lake Erie R. R.
J. B. Meyers, Engineer, Roadway and Track, Baltimore & Ohio R. R.
F. L. Nicholson, Chief Engineer, Norfolk Southern Ry.
J. H. Reinholdt, Superintendent, Minneapolis & St. Louis R. R.
G. J. Slibeck, Chief Engineer, Pettibone, Mulliken Co.
J. B. Strong, Vice-President, Ramapo Iron Works.
J. R. Watt, General Roadmaster, Louisville & Nashville R. R.

Committee VI

Buildings

W. T. Dorrance (Chairman), Designing Engineer, New York, New Haven & Hartford R. R.
J. W. Orrock (Vice-Chairman), Principal Assistant Engineer, Canadian Pacific Ry.
G. A. Belden, Architect, Central of Georgia Ry.
Eli Christiansen, Assistant Engineer of Buildings, Chicago, Rock Island & Pacific Ry.
D. R. Collin, Architect.
Arthur Crable, Engineer Maintenance of Way, Hocking Valley Ry.

W. L. Darden, Engineer of Buildings, Seaboard Air Line Ry.
Hugo Filippi, Assistant Engineer, Illinois Central R. R.
J. B. Gaut, Superintendent Bridges and Buildings, Grand Trunk Ry.
A. M. Griffin, Architect, Atlantic Coast Line R. R.
A. C. Irwin, Structural Engineer, Portland Cement Association.
F. R. Judd, Engineer of Buildings, Illinois Central R. R.
G. A. Mitchell, Superintendent Bridges and Buildings, Grand Trunk Ry.
R. V. Reamer, Engineer Maintenance of Way, Central R. R. of New Jersey.
C. W. Richey, Division Engineer, Pennsylvania System.
G. A. Rodman, General Supervisor Bridges and Buildings, New York, New Haven & Hartford R. R.

Committee VII

Wooden Bridges and Trestles

W. H. Hoyt (Chairman), Chief Engineer, Duluth, Missabe & Northern Ry.
A. O. Ridgway (Vice-Chairman), Assistant Chief Engineer, Denver & Rio Grande R. R.
H. Austill, Bridge Engineer, Mobile & Ohio R. R.
O. C. Badger, Assistant Engineer, Atchison, Topeka & Santa Fe Ry.
C. H. Blackman, Principal Assistant Engineer, Louisville & Nashville R. R.
H. J. Hansen, Office Engineer, Chicago, Milwaukee & St. Paul Ry.
W. E. Hawley, Assistant Engineer, Duluth, Missabe & Northern Ry.
H. T. Hazen, Engineer Maintenance of Way, Canadian National Rys.
C. S. Heritage, Bridge Engineer, Kansas City Southern Ry.
E. M. Lewis, Engineer Maintenance of Way, Chicago Great Western R. R.
J. B. Maddock, Engineer Bridges and Buildings, Central of Georgia Ry.
D. W. Smith, Valuation Engineer, Hocking Valley Ry.
L. L. Sparrow, Principal Assistant Engineer, Atlantic Coast Line R. R.
G. C. Tuthill, Acting Bridge Engineer, Michigan Central R. R.
A. M. Van Auken.
S. L. Wonson, Bridge Engineer, Missouri Pacific R. R.

Committee VIII

Masonry

J. J. Yates (Chairman), Bridge Engineer, Central R. R. of New Jersey.
Job Tuthill (Vice-Chairman), Assistant Chief Engineer, Pere Marquette Ry.
J. T. Andrews, Assistant Engineer, Baltimore & Ohio R. R.
R. Armour, Masonry Engineer, Grand Trunk Ry.
T. L. Condron, Consulting Engineer.
W. A. Christian, Special Engineer, Minneapolis & St. Louis R. R.
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Richard L. Humphrey, Consulting Engineer and Chemist.
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Committee IX

Signs, Fences and Crossings

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Committee XI

Records and Accounts

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Committee XII

Rules and Organization

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J. M. Fair, Assistant Supervisor, Pennsylvania System.
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Committee XIII

Water Service

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G. B. Farlow, Assistant Engineer, Baltimore & Ohio R. R.
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Committee XIV

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Committee XV

Iron and Steel Structures

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Wood Preservation

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Committee XX

Uniform General Contract Forms

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C. Frank Allen, Civil Engineer.
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Clark Dillenbeck, Assistant Chief Engineer, Philadelphia & Reading Ry.
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C. B. Niehaus, Valuation Engineer, Central of Georgia R. R.
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Frank Taylor, Right-of-Way and Lease Agent, Canadian Pacific Ry.

Committee XXI

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E. E. Kimball, Railway Traction Engineering Department, General Electric Co.
F. G. Nicholson, General Manager, Chicago & Eastern Illinois R. R.
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Committee XXII

Economics of Railway Labor

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R. C. White, General Superintendent, Missouri Pacific R. R.

Committee XXIII

Shops and Locomotive Terminals

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J. R. W. Ambrose (Vice-Chairman), Roadway.
F. J. Stimson, Ballast.
W. A. Clark, Ties.
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W. P. Wiltsee, Track.
W. T. Dorrance, Buildings.
W. H. Hoyt, Wooden Bridges and Trestles.
J. J. Yates, Masonry.
Maro Johnson, Signs, Fences and Crossings.
W. J. Eck, Signals and Interlocking.
H. M. Stout, Records and Accounts.
W. C. Barrett, Rules and Organization.
A. F. Dorley, Water Service.
A. Montzheimer, Yards and Terminals.
O. E. Selby, Iron and Steel Structures.
A. S. Going, Economics of Railway Location.
C. M. Taylor, Wood Preservation.
E. B. Katte, Electricity.
W. D. Faucette, Uniform General Contract Forms.
L. S. Rose, Economics of Railway Operation.
C. E. Johnston, Economics of Railway Labor.
F. E. Morrow, Shops and Locomotive Terminals.
F. L. C. Bond, representing Canadian practice.
J. M. R. Fairbairn, representing Canadian practice.

ELECTRICAL SECTION

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E. B. Katte..... *Vice-Chairman*

Committee I

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A. E. Owen, Chief Engineer, Central R. R. of New Jersey.
Martin Schreiber, Chief Engineer, Public Service Ry. of New Jersey.

E. B. Temple, Assistant Chief Engineer, Pennsylvania System.
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Committee II

Overhead and Third Rail Working Conductors

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Committee III

Crossings of Power and Other Service Wires

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SIGNAL SECTION

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B. T. Anderson.....*2nd Vice-Chairman*
H. S. Balliet.....*Secretary*

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F. W. Pfleging, Signal Engineer, Union Pacific R. R.
W. Y. Scott, Signal Engineer, Boston & Maine R. R.
W. M. Vandersluis, Engineer—Secretary, Illinois Central R. R.
W. E. Boland, Signal Engineer, Southern Pacific Co.
C. R. Hodgdon, Signal Engineer, Canadian Pacific Ry.
C. J. Kelloway, Superintendent of Signals, Atlantic Coast Line R. R.
J. B. Latimer, Signal Engineer, Chicago, Burlington & Quincy R. R.
W. H. Elliott, Signal Engineer, New York Central R. R., Lines East.
C. H. Morrison, Signal Engineer, New York, New Haven & Hartford R. R.
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Committees of the Committee of Direction

Committee on Committees

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J. B. Latimer.
C. H. Morrison.
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Committee on Meeting Arrangements

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Committee III

Power Interlocking

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Committee IV

Direct Current Automatic Block Signaling

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Committee V

Maintenance Rules and Instructions

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Committee VI

Standard Designs

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Committee VII

Direct Current Relays

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Committee VIII

Alternating Current Automatic Block Signaling

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J. P. Muller, Signal Supervisor, Southern Ry.
R. M. Phinney, Assistant Signal Engineer, Chicago & North Western Ry.
L. W. Smith, Assistant Signal Engineer, Chicago, Milwaukee & St. Paul Ry.
F. C. Stuart, Signal Engineer, Elgin, Joliet & Eastern Ry.
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Committee IX

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Committee X

Signaling Practice

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H. Hobson, Signal Engineer, Atchison, Topeka & Santa Fe Ry.
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Committee XII

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Committee XIV

Lightning Protection

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L. D. Dickinson, Office Engineer, Signal Department, Union Pacific R. R.
E. D. Dumas, Signal Supervisor, Galveston, Harrisburg & San Antonio Ry.
E. G. Hawkins, Corporate Engineer of Signals, New York Central Lines.

L. C. Heilman, Office Engineer, Chicago, Rock Island & Pacific Ry.
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Committee XV

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C. F. Jones, Signal Supervisor, Southern Ry., Lines West.
L. E. Kinch, Signal Inspector, Central Region, Pennsylvania System.
B. F. Oler, Inspector of Signals, Eastern Region, Pennsylvania System.
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C. H. Morrison, Signal Engineer, New York, New Haven & Hartford R. R.
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H. G. Morgan, Signal Engineer, Illinois Central R. R.
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W. S. Storms, Assistant Signal Engineer, Erie R. R.
J. B. Weigel, General Signal Inspector, Louisville & Nashville R. R.
L. S. Werthmuller, Supervisor Signals, Missouri Pacific R. R.
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J. M. Waldron, Signal Engineer, Interborough Rapid Transit System.
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Committee XX

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DIVISION V—MECHANICAL

DIVISION V—MECHANICAL

The Mechanical Division was organized on February 17, 1919, and is a consolidation of the former Master Car Builders' Association and the American Railway Master Mechanics' Association. The duty of the Division is to consider and report upon methods of construction, maintenance and service of the rolling stock of railroads.

The Master Car Builders' Association was organized on September 18, 1867, and reorganized in 1882, and its objects were the advancement of knowledge concerning the construction, maintenance and service of railroad cars and the parts thereof, by investigation through committees and discussions in convention; to provide an organization through which the members and the companies they represented might agree upon such joint action as was required to bring about uniformity and interchangeability in the parts of railroad cars, to improve their construction and to adjust the mutual interests growing out of their interchange and repair.

The American Railway Master Mechanics' Association was organized on September 30, 1868, and its objects were the advancement of knowledge concerning the principles of construction, repair and service of the rolling stock of the railroads by discussion in common, the exchange of information, investigations and reports of the experience of its members, and to provide an organization through which the members might agree upon such joint action as might be required to give the greatest efficiency to the equipment of the railroads.

Before the Master Car Builders' Association was organized cars were confined to the railroads owning them. The inconvenience of trans-shipping freight carried long distances soon made it necessary to run cars over more than one railroad and as the demand for carrying freight further without breaking bulk increased, some improvement was necessary in order to carry it to destination without transferring and as rapidly as possible. It was soon found that difficulties were constantly occurring in regard to repairs of the cars and that they were often delayed when away from home by not having the right kind of materials on hand to replace broken parts. As a result of the effort of the Master Car Builders' Association, proper rules and regulations were established for the free interchange of equipment.

Investigations and tests of practically every part of freight cars were carried on to supply equipment of the necessary strength and design to meet the varying requirements of the traffic of the country.

The question of uniformity in the construction of cars whereby the parts of cars used by one railroad may be used in repairs of the cars of any other road was constantly before the Master Car Builders' Association.

As indication of what was accomplished in this direction the following comparison of parts necessary to keep on hand for repairs at the date of reorganization (1882) and 1921 is cited:

		1882	1921
Axles	different kinds	56	5
Journal boxes	" "	58	5
Couplers	" "	26	1*
Brake shoes	" "	20	1
Brake heads	" "	27	1

The parts enumerated above are only a few of those used in the repairs of cars, but if they were all named, it would increase the list to enormous proportions.

* The Association in 1916, adopted the type "D" coupler and withdrew the former M. C. B. automatic couplers Standard of the Association; the type "D" coupler to be used in all new equipment and permissible in all replacements account of coupler failures. The former Standard M. C. B. automatic coupler is to be used, however, until worn out or defective.

Among the more important developments made by the Association may be mentioned the adoption in 1887, of the automatic coupler for cars, which eliminated the link and pin coupler and the necessity for going between cars to couple cars together. At the present time the automatic coupler is the universal standard of all railroads in the country.

Another important development was the adoption in 1888, of the automatic air brake as the standard of the Association. Today practically every car in the country is equipped with this device. Following its adoption a code of instructions for the proper operation of the air brake was prepared.

Through the activities of the Master Car Builders' Association, standards for different parts of cars were adopted as follows:

Adjusting height of couplers.
Air and Steam connections for passenger cars.
Air brake and train air signal instructions.
Air brake and train line air signal hose.
Air brake appliances.
Air brake defect card.
Air brake hose, cement for mounting, specifications for.
Air brake hose coupling and gaskets.
Air brake hose gasket, specifications for.
Air brake hose label.
Air brake hose, location of label on.
Air brakes, cleaning of.
Air brake freight car, annual repairs to.
Air brakes, general arrangements and details.
Air brake, tests.
Arch bars, column and journal box bolts.
Automatic couplers.
Axles.
Bolt heads and nuts.
Brake beams.
Brake beams, gauges for.
Brake chains.
Brake heads and shoes.
Brake heads and shoes, gauges for.
Car doors and fixtures.
Car sills, uniformity for section of.
Cars, lettering and marking of.
Cars, outside framed, lining for.
Cars, tank, specifications for.
Center plates.
Center sills, spacing between.
Center sills, splicing of, both wood and steel.
Clearances, side for couplers.
Contour line and limit gauges for couplers.
Coupler front and back stops.
Coupler guard arm.
Coupler head.
Coupler head, temporary standard.
Coupler key slot.
Coupler knuckle.
Coupler knuckle lock lift.
Coupler knuckle pivot pin.
Coupler knuckle pivot testing machine.
Coupler knuckle throw.
Coupler lock seat.
Coupler shank.
Coupler side clearance.
Coupler, spacing between center sills for.
Coupler, spacing between horn and buffer beam.
Coupler, striking horn.
Coupler, type "D".

Coupler yoke rivets.
Coupler yokes.
Couplers, gauges for.
Draft gear followers.
Drop test machine.
Dust guard for journal boxes.
End for hopper door operating shaft.
Express cars, marking of.
Flooring, siding, lining and roofing.
Journal boxes.
Journal bearings.
Journal wedges.
Journal bearing gauges.
Journal wedge gauges.
Lamp socket for signal lamp.
Passenger car journal boxes.
Passenger car journal bearings.
Passenger car journal wedges.
Passenger car pedestals.
Pipe unions.
Rack for testing triple valves.
Rack for testing triple valve, instructions for operation of.
Safety appliances for freight and passenger cars.
Screw threads.

Specifications were formulated and adopted as follows:

Air brake and train air signal hose.
Air hose gaskets.
Automatic couplers.
Bars, carbon steel for springs.
Bolts and nuts.
Brake beams.
Brake shoes.
Carbon steel bars for railway springs.
Cement for mounting air brake hose.
Chain.
Couplers, type "D".
Coupler knuckle pivot pins, heat treated.
Electric train lighting, certain details for.
Elliptical springs.
Galvanized sheets.
Helical springs.
Lined journal bearings.
Rivet steel and rivets.
Steam heat hose for passenger cars.
Structural steel, steel plate and steel sheets for passenger and freight equipment cars.
Tank cars.
Welded pipe.
Wrought steel wheels.
Springs and spring caps for freight cars.
Stop, front and back for couplers.
Thickness for steel tires.
Terms and gauging points for wheels and track.
Tires, steel, minimum thickness for.
Wheel check gauge.
Wheel circumference measure for cast iron, cast steel and wrought steel wheels.
Wheel defect gauge.
Wheel flange thickness gauges for new wheels.
Wheel rotundity gauge for wrought steel wheels.
Wheel tread and flange for, form of.
Wheel, tread and flange for steel and steel tired wheels.

Wheels, car, distance between backs of flanges.
Wheels, second-hand, limit gauge for inspecting for remounting.
Wheels, solid wrought steel, specifications governing dimensions and tolerances.
Wheels, steel and steel tired, diameter of.
Wheels, steel, gauge for measuring thickness of rim.
Wheels, wrought steel, plane gauge for.

In addition to the foregoing standards, certain recommended practices have been adopted for investigation and trial with the expectation that they, or some modification thereof, would finally be adopted as standard and become the uniform practice of the railroads. These recommended practices are as follows:

Apparatus for testing insulation.
Boards, placard, for house cars.
Bolsters, truck, cast steel, designs of.
Bolsters, truck, pressed steel, designs of.
Bolsters, truck, cast and pressed steel, gauges for.
Box car ends, design and strength.
Box car end door fixtures.
Box car outside hung side doors for new cars, specifications for.
Box car, framing for.
Box car, inside dimensions of.
Brake gear, high speed foundation for passenger service cars.
Brakes, clasp.
Branding steel wheels.
Car inspectors, rules for the examining of.
Cars, classification of.
Cars, freight and passenger, definitions and designating letters of.
Cars, height and width of.
Cast iron wheels.
Center sills.
Chains, check.
Chains, platform safety.
Chains, safety.
Collection of salt water drippings.
Corners for doors, door jambs and all other inside exposed corners of stock cars.
Coupling gauge for air brake hose.
Coupling, steam hose.
Dimensions, limiting, for pedestal jaw for cast steel truck sides.
Electric train lighting, specifications for.
Floors, refrigerator cars, height of.
Ice tanks, refrigerator cars.
Insulation, methods and apparatus for testing.
Limit gauges for round iron.
Longitudinal spacing of temporary stake pockets.
Mounting tires.
Mounting wheels.
Permanent stake pockets.
Rivet steel, shearing values of.
Specifications and tests for pressed steel truck bolsters.

Specifications for:

Black paint.
Boiled linseed oil.
Box car outside hung doors.
Cast iron wheels.
Cast steel truck bolsters.
Electric train lighting.
Helical springs.
Insulation paper for refrigerator cars.

Iron axles.
Japan drier.
Journal bearings for passenger and freight cars.
Lumber.
Malleable castings.
Miscellaneous steel castings.
Oxide of iron paste.
Raw linseed oil.
Red lead.
Refined wrought iron bars.
Turpentine.
White lead for lettering.
Tire fastenings for steel-tired wheels.
Uncoupling arrangement for M. C. B. couplers.
Retaining valves for air brakes.

Interchange Rules

The Master Car Builders' Association realized that the railroad car was simply a vehicle of transportation, no matter by what railroad it was owned, and that the railroad car was subject to very severe handling in trains and that certain defects naturally developed which must be kept in repair. To take care of this condition the Association formulated rules for the interchange of traffic in-so-far as they relate to the physical condition of the car, so that the traffic itself might not be delayed. These rules were made effective through agreement of the railroads owning the cars and provided prompt interchange of traffic between railroads with a minimum of delay due to the defective condition of the car.

The objects of the Rules of Interchange were:

1. To establish rules which would uniformly permit that the prompt interchange of traffic between the various railroads without undue delay to the shipment on the car, which might be brought about by a difference of opinion between the receiving and delivering line as to responsibility for the physical condition of the car or the method of loading on open top cars.

2. To provide uniform rules for the determining of responsibility for damage to the cars.

3. To provide through allowances, as given in the rules, prices to be charged for materials, detail times for completing the various items of repairs and a uniform labor rate per hour for same.

4. Uniformity in compiling charges as between car owners for the maintenance of the equipment of the country.

5. Fixed allowances to enable car owners to properly check bills for car repairs made against them by other handling companies.

6. To provide methods for reimbursing car owners for the destruction or damage to their cars by other handling companies.

7. The compulsory use by car owners of detail standards of construction as brought about through the operation of these rules, so that when the Association felt that certain standards of construction were necessary for the safe operation of cars, cars will not be permitted to be interchanged without the use of said standards.

In 1887, an Arbitration Committee was established for the settling of disputes arising under the Rules of Interchange between members of the Association in reference to a correct understanding of the rules with respect to car maintenance and also as to the correctness of charges. Up to the time of the amalgamation with the American Railway Association, 1155 cases were arbitrated by this Committee, and in addition, a great number of interpretations of the rules were rendered.

Loading Rules

The Association prepared and promulgated rules for the loading of materials on open cars, thereby preventing the shifting of loads in transit and the

consequent accidents therefrom. These loading rules were made effective through the Rules of Interchange providing that no car would be accepted in interchange unless loaded in accordance with the Standard Loading Rules of the Association.

Safety Appliances

The Association, early in its history, adopted safety appliances for cars which were afterwards approved by the Interstate Commerce Commission and made compulsory on all railroad cars.

Tank Car Specifications

The Association, working in conjunction with the Bureau of Explosives, developed a series of specifications for the construction and operation of tank cars. The first specifications were prepared in 1903, and were principally for wooden underframe cars having tanks tested to but 40 lbs. per square inch, and therefore, under the Interstate Commerce Commission Regulations could not be used for the transportation of inflammable liquids with flash points below 20 degrees F.

The next step was the development of a tank car for the handling of volatile inflammable products, to withstand a test of 75 lbs. per square inch. The Association then developed specifications for tank cars for the transportation of such liquids as chlorine and sulphur dioxide to withstand a test of 300 lbs. per square inch. Tests of these tanks and their safety valves must be certified to the Bureau of Explosives before they are permitted to be used in service.

The Tank Car Specifications are made effective through the Rules of Interchange which provide that tank cars will not be accepted in interchange unless they comply with the specifications of the Association.

Since the organization of the American Railway Master Mechanics' Association, a valuable fund of information pertaining to the construction, repair and service of railway rolling stock has been accumulated. The Association, through its committees, has placed before the Mechanical Officers of the railways complete and up-to-date reports on all new devices and practices. As a result of these committee reports and investigations, standards for different parts of locomotives have been adopted by the Association, as follows:

Axles for locomotive tenders.
Bolt-heads.
Cast iron wheels.
Castle nuts.
Checking formulae for main and side rods.
Circumference measure for wheel.
Cotter pins.
Coupler contour.
Decimal gauge.
Dimensions and threads of wrought iron pipe.
Distance between back of flanges of steel-tired engine, truck, driver or tender wheels.
Driving wheel centers.
Fittings for lubricators.
Flange for cast iron wheels.
Gauge, limit, for round iron.
Maximum and minimum flange thickness gauge.
Sheet metal gauge.
Wheel defect and worn coupler limit gauge.
Master gauge for turning wheel centers and boring tires.
Rules for the inspection and testing of locomotive boilers.
Journal boxes.
Journal bearings.
Journal wedges.
Journal bearing gauges.

Journal wedge gauges.
Location of cotter pin holes in projecting bolt ends.
Method of conducting efficiency tests of locomotives.
Minimum thickness for steel tires.
Mounting pressures for wheels.
Nuts.
Packing rings.
Pipe unions.
Plane gauge for solid steel wheels.
Rotundity gauge for solid steel engine and truck wheels.
Rules and instructions for inspection and testing of Locomotives and Tenders.
Safety appliances.
Safety valves, size of, specifications for determining.
Screw threads.
Shrinkage allowance for driving wheel tires.
Spokes, size of.
Steam chests, specifications for.
Section of tire.
Sizes of tires.
Tread for cast iron wheels.
Valve bushings, specifications for.
Worn and distorted coupler contour gauge.

Specifications for:

Axles, annealed and unannealed.
Axles, steel, for locomotive tenders.
Axles, quenched and tempered carbon steel.
Boiler and fire-box steel.
Steel castings.
Cast iron cylinders and cylinder parts.
Carbon steel forgings, quenched and tempered.
Carbon steel forgings, blooms, billets and slabs.
Quenched and tempered alloy steel forgings.
Quenched and tempered carbon steel forgings.
Superheater castings.
Superheater pipes.
Tubes, arch and boiler.
Wheels, cast iron.
Wheels, solid wrought carbon steel.

In addition to the above standards, certain forms of recommended practice have been submitted to the members for investigation and trial, with the expectation that they, or some modification thereof, will finally be adopted as standard, as follows:

Air-brake and train air-signal instructions.
Apprentices, basic principles relating to handling of.
Boiler washing, rules for.
Brakes on engines and tenders handled dead in trains in interchange, operation of.
Branding solid steel wheels and details of letters and figures.
Flange and screw coupling for injectors, dimensions for.
Fastenings for tires, steel wheels.
Fuel economy, instructions in.
Gauge for measuring steel wheels to restore contour.
Gauge, guard rail and frog wing.
Gauge, wheel mounting and check.
Gauges, limit for remounting second-hand wheel.
Headlights, photometering of.
Rules for determining stresses in locomotive boilers.
Terms and gauging points for wheels and track.
Specifications for arch tubes.
Wrought iron bars.

Boiler tubes.
Bronze bearings.
Lined journal bearings.
Carbon steel forgings, blooms, billets and slabs.
Carbon steel bars for railway springs.
Chain.
Air-brake hose gaskets.
Air-brake hose.
Steam-heat hose.
Lumber.
Machine bolts and nuts.
Mild steel bars.
Pig iron.
Welded pipe.
Refined wrought iron bars.
Rivet steel and rivets for locomotive boilers.
Rivet steel and rivets for tank and underframe.
Safe end materials.
Standardization of tinware.
Stay-bolt iron.
Superheater pipes.
Steel tires.

In addition to the adoption of the above standard and recommended practice, the great accomplishment of the Association has been the assembling in handy form, in its annual proceedings, up-to-the-minute information on the state of the art of locomotive design, construction and maintenance. These proceedings have been valuable text-books for Mechanical Engineers, Designers, Superintendents of Motive Power, and Master Mechanics.

Rules for the Inspection and Testing of Locomotive Boilers

In 1913, the Federal regulations for the inspection and testing of locomotive boilers and their appurtenances, as contained in the Order of the Interstate Commerce Commission, dated June 2, 1911, were adopted as standard practice.

Rules and Instructions for Inspection and Testing of Steam Locomotives, etc.

In 1916, the Rules and Instructions for Inspection and Testing of Steam Locomotives and Tenders, as ordered by the Interstate Commerce Commission, October 11, 1915, in accordance with the Act of Congress of March 4, 1915, were adopted as standard practice.

Scholarships

At the fifth annual convention of the American Railway Master Mechanics' Association, held in Boston during the year 1872, there was a surplus of $3,000 from the Entertainment Fund. By a unanimous vote of the subscribers (merchants and manufacturers of Boston) this money was turned over to the Association to be placed in the hands of three trustees (chosen by the Association) to be used for the benefit of the Association in such manner as the trustees might direct.

There were many discussions as to the proper use for this fund, among which was the project of erecting a building for the Association. However, the fund was finally invested in Government bonds until the year 1891, when with accrued interest it amounted to $6,898.13.

A Committee was then appointed to find a suitable use for this money and recommended that $5,000 of the amount be invested in four scholarships at Stevens' Institute of Technology, which was done.

In 1903, Jos. T. Ryerson & Sons, of Chicago, provided a scholarship in any institution and assigned the filling of this scholarship to the Association. This scholarship provided for $500 a year. In 1915, this was changed to two scholarships of $300 per year each.

These scholarships have been filled every year since first established. They are available to the sons of members and under certain conditions, as provided by the constitution, to the sons of other railroad employes. Successful candidates are required to take the mechanical engineering course.

The present activities of the Mechanical Division may be briefly outlined as follows:

The Committee on Car Construction is preparing recommendations covering further standardization of detail parts used in car construction, which if adopted and put into practice will reduce the necessity of carrying large stock of various car repair parts at all repair points. Standardization of details of cars reduces to a minimum the number of various kinds of material necessary to the prompt handling of bad order cars. This Committee is also making considerable progress in the matter of standard car design.

The Committee on Specifications and Tests for Materials is recommending some additional specifications for adoption. The use of standard specifications for common materials used in car and locomotive work reduces cost of manufacture and make possible quick deliveries.

The Special Committee of the Mechanical and Purchases and Stores Divisions on Joint Inspection of Standard Materials has presented a report to the General Committee which will be considered at the next meeting. If an acceptable arrangement for such joint inspection of standard materials can be worked out, and in connection therewith a more universal adoption of standard specifications, it will be possible for the railroads to effect substantial economies in the purchase and acceptance of materials.

The Committee on Loading Rules in cooperation with the shippers of various commodities using open top equipment, is always working to better these loading rules for the purpose of ensuring safety to the equipment used and the product handled, and to eliminate delays to equipment account of loads becoming shifted in transit. This Committee will recommend several changes in these rules this year which have been worked up jointly by the Committee and the shippers of steel and steel products, and the shippers of stone.

The Committee on Tank Cars is recommending some revisions of the Standard Tank Car Specifications, which specifications are designed to insure suitable standards of construction, and maintenance of tank cars for the safe and economical handling of the dangerous products carried in such cars.

The Special Committee on Standard Method of Packing Journal Boxes is conducting investigations with a view of insuring proper lubrication of car journals by the most economical method.

The Committee on Train Brake and Signal Equipment and the Committee on Brake Shoe and Brake Beam Equipment are actively considering the question of brake equipment and its proper maintenance, which affect the economical and safe handling of cars.

The Arbitration Committee and its subordinate committee on Prices for Labor and Materials are continually working to improve the Rules Governing the Condition of, and Repairs to Freight and Passenger Cars for the Interchange of Traffic so that these rules will insure the most safe and economical operation.

In addition to the above, there are several other Committees of the Division which have done some work, but those activities have been temporarily suspended due to the necessity for curtailing the expenses of the Association. A list of these Committees is as follows:

Autogenous and Electric Welding.
Couplers and Draft Gears.
Car Wheels.

Feed Water Heaters for Locomotives.
Car Repair Shop Layouts.
Modernization of Stationary Boiler Plants.
Engine Terminals, Design and Operation.
Scheduling of Equipment through Car Repair Shops.

All of the above subjects affect economy in operation, especially Welding, Feed Water Heaters for Locomotives, and Modernization of Stationary Boiler Plants.

There is attached hereto a statement showing the organization of the Mechanical Division.

There is included also in the Mechanical Division, the Equipment Painting Section. This is composed of the former Master Car and Locomotive Painters' Association.

The first annual meeting of the Section was held at Boston, September 14-16, 1920. At that session reports were received from the following Committees:

Classification of Painting, Repairs and Shopping of Equipment.
Direction.
Maintenance and Care of Paint and Varnish at Terminals.
Shop Construction and Equipment.
Safety and Sanitation.
Standards.
Tests.

The accompanying statement shows the organization of the Mechanical Division:

DIVISION V—MECHANICAL

Officers

W. J. Tollerton.....*Chairman*
J. Coleman.....*Vice-Chairman*
V. R. Hawthorne.....*Secretary*

General Committee

W. J. Tollerton (Chairman), General Mechanical Superintendent, Chicago, Rock Island & Pacific Ry.
James Coleman (Vice-Chairman), Assistant to General Superintendent Motive Power and Car Department, Grand Trunk Ry. System.
C. F. Giles, Superintendent Machinery, Louisville & Nashville R. R.
T. H. Goodnow, Superintendent Car Department, Chicago & North Western Ry.
A. Kearney, Superintendent Motive Power, Norfolk & Western Ry.
J. E. O'Brien, Mechanical Superintendent, Missouri Pacific R. R.
J. T. Wallis, Chief of Motive Power, Pennsylvania System.
W. H. Winterrowd, Chief Mechanical Engineer, Canadian Pacific Ry.
C. E. Chambers, Superintendent Motive Power and Equipment, Central R. R. of New Jersey.
J. S. Lentz, Master Car Builder, Lehigh Valley R. R.
C. E. Fuller, Superintendent Motive Power and Machinery, Union Pacific R. R.
H. L. Ingersoll, Assistant to President, New York Central R. R.
John Purcell, Assistant to Vice President, Atchison, Topeka & Santa Fe Ry.
J. J. Tatum, Superintendent Car Department, Baltimore & Ohio R. R.
Willard Kells, Superintendent Motive Power, Atlantic Coast Line R. R.
Wm. Schlafge, Mechanical Manager, Erie R. R.

J—Nominating

F. W. Brazier (Chairman), Assistant to General Superintendent Rolling Stock, New York Central R. R.
H. T. Bentley, Superintendent Motive Power and Machinery, Chicago & North Western Ry.
J. J. Hennessey, Assistant Master Car Builder, Chicago, Milwaukee & St. Paul Ry.
C. E. Chambers, Superintendent Motive Power and Equipment, Central R. R. of New Jersey.
William Schlafge, Mechanical Manager, Erie R. R.

STANDING COMMITTEES

A—Arbitration

T. H. Goodnow (Chairman), Superintendent Car Department, Chicago & North Western Ry.
J. J. Hennessey, Assistant Master Car Builder, Chicago, Milwaukee & St. Paul Ry.
J. Coleman, Assistant to General Superintendent Motive Power and Car Department, Grand Trunk Ry.
F. W. Brazier, Assistant to General Superintendent Rolling Stock, New York Central R. R.
T. W. Demarest, General Superintendent Motive Power, Pennsylvania System.
J. E. O'Brien, Mechanical Superintendent, Missouri Pacific R. R.
G. F. Laughlin, General Superintendent, Armour Car Lines.

A-1—Prices for Labor and Material

A. E. Calkins (Chairman), District Master Car Builder, New York Central R. R.
Ira Everett, Chief Car Inspector, Lehigh Valley R. R.
J. H. Milton, Superintendent Car Department, Chicago, Rock Island & Pacific Ry.
C. N. Swanson, Superintendent Car Shops, Atchison, Topeka & Santa Fe Ry.
T. J. Boring, General Foreman M. C. B. Clearing House, Pennsylvania System.
E. H. Weigman, Supervisor A. R. A. Interchange and Accounting, Louisville & Nashville R. R.
I. N. Clark, Master Car Builder, Grand Trunk Ry.
H. G. Griffin, General Superintendent Shops, Morris & Co.
A. E. Smith, Vice-President, Union Tank Car Co.

B—Arrangements

W. J. Tollerton (Chairman), General Mechanical Superintendent, Chicago, Rock Island & Pacific Ry.
J. Coleman, Assistant to General Superintendent Motive Power and Car Department, Grand Trunk Ry.
J. F. Schurch, Vice-President, The T. H. Symington Co.

C—Autogenous and Electric Welding

J. T. Wallis (Chairman), Chief of Motive Power, Pennsylvania System.
G. W. Rink, Assistant Superintendent Motive Power, Central R. R. of New Jersey.
A. M. McGill, Assistant Superintendent Motive Power, Lehigh Valley R. R.
R. W. Schulze, Superintendent Car Department, St. Louis-San Francisco Ry.
Willard Kells, Superintendent Motive Power, Atlantic Coast Line R. R.
H. T. Bentley, Superintendent Motive Power and Machinery, Chicago & North Western Ry.

T. P. Madden, Traveling Boiler Inspector, Missouri Pacific R. R.
G. M. Gray, Superintendent Motive Power, Bessemer & Lake Erie R. R.
H. Wanamaker, District Superintendent Motive Power, New York Central R. R.
J. T. Carroll, General Superintendent Motive Power, Baltimore & Ohio R. R.

D—Car Construction

W. F. Kiesel, Jr. (Chairman), Mechanical Engineer, Pennsylvania System.
A. R. Ayers, Superintendent Motive Power, New York, Chicago & St. Louis R. R.
C. E. Fuller, Superintendent Motive Power and Machinery, Union Pacific R.R.
J. C. Fritts, Master Car Builder, Delaware, Lackawanna & Western R. R.
C. L. Meister, Mechanical Engineer, Atlantic Coast Line R. R.
J. McMullen, Superintendent Car Department, Erie R. R.
T. H. Goodnow, Superintendent Car Department, Chicago & North Western Ry.
John Purcell, Assistant to Vice-President, Atchison, Topeka & Santa Fe Ry.
W. O. Moody, Mechanical Engineer, Illinois Central R. R.
J. A. Pilcher, Mechanical Engineer, Norfolk & Western Ry.
H. L. Ingersoll, Assistant to President, New York Central R. R.
W. H. Wilson, Assistant to Vice-President, Northern Pacific Ry.
F. W. Mahl, Director of Purchases, Southern Pacific Co.

D-1—Brake Shoe and Brake Beam Equipment

W. J. Bohan (Chairman), Assistant General Mechanical Superintendent, Northern Pacific Ry.
C. B. Young, General Mechanical Engineer, Chicago, Burlington & Quincy R. R.
F. M. Waring, Engineer Tests, Pennsylvania System.
M. H. Haig, Mechanical Engineer, Atchison, Topeka & Santa Fe Ry.
H. W. Coddington, Engineer Tests, Norfolk & Western Ry.
G. E. Smart, Mechanical Assistant, Car Department, Canadian National Rys.
T. L. Burton, Air Brake Engineer, New York Central R. R.

D-2—Couplers and Draft Gears

R. L. Kleine (Chairman), Assistant Chief of Motive Power, Pennsylvania System.
J. C. Fritts, Master Car Builder, Delaware, Lackawanna & Western R. R.
J. R. Onderdonk, Engineer Tests, Baltimore & Ohio R. R.
J. A. Pilcher, Mechanical Engineer, Norfolk & Western Ry.
C. B. Young, General Mechanical Engineer, Chicago, Burlington & Quincy R. R.
L. K. Sillcox, General Superintendent Motive Power, Chicago, Milwaukee & St. Paul Ry.
Samuel Lynn, Master Car Builder, Pittsburgh & Lake Erie R. R.
L. P. Michael, Mechanical Engineer, Chicago & North Western Ry.
Prof. E. L. Endsley, University of Pittsburgh, Pittsburgh, Pa.

D-3—Train Brake and Signal Equipment

T. L. Burton (Chairman), Air Brake Engineer, New York Central R. R.
B. P. Flory, Superintendent Motive Power, New York, Ontario & Western Ry.
J. M. Henry, General Superintendent Motive Power, Pennsylvania System.
L. P. Streeter, Air Brake Engineer, Illinois Central R. R.
R. B. Rasbridge, Superintendent Car Department, Philadelphia & Reading Ry.
G. H. Wood, General Air Brake Instructor, Atchison, Topeka & Santa Fe Ry.
H. M. Curry, General Mechanical Superintendent, Northern Pacific Ry.
W. J. Hatch, General Air Brake Inspector, Canadian Pacific Ry.
G. C. Bishop, Superintendent Motive Power, Long Island R. R.

E—Car Wheels

W. C. A. Henry (Chairman), General Superintendent Motive Power, Pennsylvania System.
W. H. Winterrowd, Chief Mechanical Engineer, Canadian Pacific Ry.
J. A. Pilcher, Mechanical Engineer, Norfolk & Western Ry.
O. C. Cromwell, Assistant to General Superintendent Motive Power, Baltimore & Ohio R. R.
C. T. Ripley, General Mechanical Inspector, Atchison, Topeka & Santa Fe Ry.
H. Stillman, Mechanical Engineer and Engineer Tests, Southern Pacific Co.
L. K. Sillcox, General Superintendent Motive Power, Chicago, Milwaukee & St. Paul Ry.
H. C. Manchester, Superintendent Motive Power and Equipment, Delaware, Lackawanna & Western R. R.
P. H. Dudley, Consulting Engineer, New York Central R. R.

F—Committees

T. H. Goodnow (Chairman), Superintendent Car Department, Chicago & North Western Ry.
J. S. Lentz, Master Car Builder, Lehigh Valley R. R.
C. F. Giles, Superintendent Machinery, Louisville & Nashville R. R.
J. E. O'Brien, Mechanical Superintendent, Missouri Pacific R. R.
J. T. Wallis, Chief of Motive Power, Pennsylvania System.

G—Locomotive Construction

H. T. Bentley (Chairman), Superintendent Motive Power and Machinery, Chicago & North Western Ry.
H. C. Oviatt, Superintendent Motive Power, New York, New Haven & Hartford R. R.
C. E. Fuller, Superintendent Motive Power and Machinery, Union Pacific R. R.
F. H. Hardin, Chief Engineer of Motive Power and Rolling Stock, New York Central R. R.
H. M. Curry, General Mechanical Superintendent, Northern Pacific Ry.
P. F. Smith, Jr., Works Manager, Pennsylvania System.
E. C. Chenoweth, Mechanical Engineer, Chicago, Rock Island & Pacific Ry.
M. F. Cox, Mechanical Engineer, Louisville & Nashville R. R.
W. I. Cantley, Mechanical Engineer, Lehigh Valley R. R.
G. H. Emerson, Chief of Motive Power and Equipment, Baltimore & Ohio R. R.
W. H. Winterrowd, Chief Mechanical Engineer, Canadian Pacific Ry.

G-1—Design and Maintenance of Locomotive Boilers

G. H. Emerson (Chairman), Chief of Motive Power and Equipment, Baltimore & Ohio R. R.
C. B. Young, General Mechanical Engineer, Chicago, Burlington & Quincy R. R.
A. W. Gibbs, Chief Mechanical Engineer, Pennsylvania System.
Jos. Chidley, Superintendent Motive Power, New York Central R. R.
R. W. Bell, General Superintendent Motive Power, Illinois Central R. R.
W. H. Wilson, Assistant to Vice-President, Northern Pacific Ry.
W. W. Lemen, Superintendent Motive Power and Car Department, Denver & Rio Grande R. R.
R. J. Williams, Superintendent Motive Power, Pere Marquette Ry.
J. Snowden Bell.
George L. Bourne, President, Locomotive Superheater Co.

G-2—Feed Water Heaters for Locomotives

F. M. Waring (Chairman), Engineer Tests, Pennsylvania System.
A. Kearney, Superintendent Motive Power, Norfolk & Western Ry.
W. Kelly, General Superintendent Motive Power, Great Northern Ry.
G. W. Rink, Assistant Superintendent Motive Power, Central R. R. of New Jersey.
L. P. Michael, Mechanical Engineer, Chicago & North Western Ry.
G. S. Edmonds, Superintendent Motive Power, Delaware & Hudson Co.

G-4—Mechanical Stokers

M. A. Kinney (Chairman), Superintendent Motive Power, Hocking Valley Ry.
A. Kearney, Superintendent Motive Power, Norfolk & Western Ry.
A. J. Fries, Assistant Superintendent Motive Power, New York Central R. R.
C. James, Mechanical Superintendent, Erie R. R.
F. W. Hankins, Assistant Chief of Motive Power, Pennsylvania System.
W. J. Bohan, Assistant General Mechanical Superintendent, Northern Pacific Ry.
H. C. Manchester, Superintendent Motive Power and Equipment, Delaware, Lackawanna & Western R. R.
W. Malthaner, Superintendent Motive Power and Maintenance of Equipment, Baltimore & Ohio R. R.
M. H. Haig, Mechanical Engineer, Atchison, Topeka & Santa Fe Ry.

H—Loading Rules

R L. Kleine (Chairman), Assistant Chief of Motive Power, Pennsylvania System.
J. J. Burch, General Foreman Car Department, Norfolk & Western Ry.
E. J. Robertson, Superintendent Car Department, Minneapolis, St. Paul & Sault Ste. Marie Ry.
J. E. Mehan, General Car Foreman, Chicago, Milwaukee & St. Paul Ry.
S. Lynn, Master Car Builder, Pittsburgh & Lake Erie R. R.
Ira Everett, Chief Car Inspector, Lehigh Valley R. R.
T. O. Sechrist, Assistant Superintendent Machinery, Louisville & Nashville R. R.
E. N. Harding, General Mechanical Inspector, Illinois Central R. R.
G. R. Lovejoy, Master Mechanic, Detroit Terminal R. R.

I—Manual

W. E. Dunham (Chairman), Assistant Superintendent Motive Power and Machinery, Chicago & North Western Ry.
A. R. Ayers, Superintendent Motive Power, New York, Chicago & St. Louis R. R.
W. F. Kiesel, Jr., Mechanical Engineer, Pennsylvania System.
A. R. Kipp, Mechanical Superintendent, Minneapolis, St. Paul & Sault Ste. Marie Ry.
J. Hainen, Assistant to Vice-President, Southern Ry.
J. T. Carroll, General Superintendent Motive Power, Baltimore & Ohio R. R.
J. McMullen, Superintendent Car Department, Erie R. R.

K—Safety Appliances

C. E. Chambers (Chairman), Superintendent Motive Power and Equipment, Central R. R. of New Jersey.
C. E. Fuller, Superintendent Motive Power and Machinery, Union Pacific R. R.
W. J. Tollerton, General Mechanical Superintendent, Chicago, Rock Island & Pacific Ry.
J. T. Wallis, Chief of Motive Power, Pennsylvania System.
C. F. Giles, Superintendent Machinery, Louisville & Nashville R. R.
T. H. Goodnow, Superintendent Car Department, Chicago & North Western Ry.

L—Specifications and Tests for Materials

F. M. Waring (Chairman), Engineer Tests, Pennsylvania System.
J. R. Onderdonk, Engineer Tests, Baltimore & Ohio R. R.
Frank Zeleny, Engineer Tests, Chicago, Burlington & Quincy R. R.
A. H. Fetters, Mechanical Engineer, Union Pacific R. R.
G. M. Davidson, Engineer Tests, Chicago & North Western Ry.
H. G. Burnham, Engineer Tests, Northern Pacific Ry.
J. C. Ramage, Superintendent Tests, Southern Ry.
J. H. Gibboney, Chemist, Norfolk & Western Ry.
H. P. Hass, Engineer Tests, New York, New Haven & Hartford R. R.

M—Subjects

Willard Kells (Chairman), General Superintendent Motive Power, Atlantic Coast Line R. R.
H. M. Curry, General Mechanical Superintendent, Northern Pacific Ry.
William Schlafge, Mechanical Manager, Erie R. R.
F. W. Brazier, Assistant to General Superintendent Rolling Stock, New York Central R. R.
L. A. Richardson, Mechanical Superintendent, Chicago, Rock Island & Pacific Ry.

N—Tank Cars

A. W. Gibbs (Chairman), Chief Mechanical Engineer, Pennsylvania System.
C. E. Chambers, Superintendent Motive Power and Equipment, Central R. R. of New Jersey.
C. James, Mechanical Superintendent, Erie R. R.
S. Lynn, Master Car Builder, Pittsburgh & Lake Erie R. R.
John Purcell, Assistant to Vice-President, Atchison, Topeka & Santa Fe Ry.
George McCormick, General Superintendent Motive Power, Southern Pacific Co.
F. K. Tutt, Mechanical Superintendent, Missouri, Kansas & Texas Ry.
Col. B. W. Dunn, Chief Inspector, Bureau of Explosives.
A. E. Smith, Vice-President, Union Tank Car Co.
George Hartley, care of Semet-Solvay Co.
C. W. Owsley, Chief Inspector, The Texas Co.

SPECIAL COMMITTEES

P—Car Repair Shop Layouts

I. S. Downing (Chairman), General Master Car Builder, Cleveland, Cincinnati, Chicago & St. Louis Ry.
George Thompson, District Master Car Builder, New York Central R. R.
J. J. Tatum, Superintendent Car Department, Baltimore & Ohio R. R.
C. W. Renner, Assistant General Foreman Car Shops, Pennsylvania System.
J. C. Fritts, Master Car Builder, Delaware, Lackawanna & Western R. R.
L. Robinson, Shop Engineer, Illinois Central R. R.
C. N. Swanson, Superintendent Car Shops, Atchison, Topeka & Santa Fe Ry.
E. P. Marsh, General Foreman Car Department, Chicago & North Western Ry.
D. Wood, Assistant Mechanical Engineer, Southern Pacific Co.

Q—Design, Maintenance and Operation of Electric Rolling Stock

G. C. Bishop (Chairman), Superintendent Motive Power, Long Island R. R.
C. H. Quereau, Superintendent Electric Equipment, New York Central R. R.
W. L. Bean, Mechanical Assistant, New York, New Haven & Hartford R. R.
J. H. Davis, Electrical Engineer, Baltimore & Ohio R. R.
George McCormick, General Superintendent Motive Power, Southern Pacific Co.
J. A. Pilcher, Mechanical Engineer, Norfolk & Western Ry.

J. V. B. Duer, Electrical Engineer, Pennsylvania System.
John Dickson, Superintendent Motive Power, Spokane, Portland & Seattle Ry.
L. K. Sillcox, General Superintendent Motive Power, Chicago, Milwaukee & St. Paul Ry.

R—Engine Terminals, Design and Operation

C. E. Fuller (Chairman), Superintendent Motive Power and Machinery, Union Pacific R. R.
W. J. Tollerton, General Mechanical Superintendent, Chicago, Rock Island & Pacific Ry.
John Purcell, Assistant to Vice-President, Atchison, Topeka & Santa Fe Ry.
F. W. Hankins, Assistant Chief of Motive Power, Pennsylvania System.
C. F. Giles, Superintendent Machinery, Louisville & Nashville R. R.
H. H. Boyd, Assistant Chief Mechanical Engineer, Canadian Pacific Ry.
H. C. Eich, Superintendent Motive Power, Chicago Great Western R. R.
G. F. Hess, Superintendent Motive Power, Wabash Ry.

S—Lateral Motion on Locomotives

Willard Kells (Chairman), Superintendent Motive Power, Atlantic Coast Line R. R.
T. A. Foque, General Mechanical Superintendent, Minneapolis, St. Paul & Sault Ste. Marie Ry.
J. T. Carroll, General Superintendent Motive Power, Baltimore & Ohio R. R.
R. W. Bell, General Superintendent Motive Power, Illinois Central R. R.
H. T. Bentley, Superintendent Motive Power and Machinery, Chicago & North Western Ry.

T—Locomotive Headlights and Classification Lamps

W. H. Flynn (Chairman), Superintendent Motive Power, Michigan Central R. R.
C. H. Rae, Assistant Superintendent Machinery, Louisville & Nashville R. R.
A. R. Ayers, Superintendent Motive Power, New York, Chicago & St. Louis R. R.
H. M. Curry, General Mechanical Superintendent, Northern Pacific Ry.
J. L. Minick, Assistant Engineer, Pennsylvania System.
E. W. Jansen, Electrical Engineer, Illinois Central R. R.
R. W. Anderson, Superintendent Motive Power, Chicago, Milwaukee & St. Paul Ry.

U—Modernization of Stationary Boiler Plants

L. A. Richardson (Chairman), Mechanical Superintendent, Chicago, Rock Island & Pacific Ry.
J. V. B. Duer, Electrical Engineer, Pennsylvania System.
J. H. Davis, Electrical Engineer, Baltimore & Ohio R. R.
L. C. Bowes, Supervisor Stationary Plants, Chicago, Rock Island & Pacific Ry.
J. F. Raps, General Boiler Inspector, Illinois Central R. R.
D. W. Cross, Superintendent Motive Power, Toledo, St. Louis & Western R.R.
E. S. Pearce, Mechanical Engineer, Cleveland, Cincinnati, Chicago & St. Louis Ry.

V—Scheduling of Equipment Through Repair Shops

Henry Gardner (Chairman), Corporate Mechanical Engineer, Baltimore & Ohio R. R.
D. J. Mullen, Superintendent Motive Power, Cleveland, Cincinnati, Chicago & St. Louis Ry.
P. F. Smith, Jr., Works Manager, Pennsylvania System.
John Purcell, Assistant to Vice-President, Atchison, Topeka & Santa Fe Ry.
C. J. Bodemer, Assistant Superintendent Machinery, Louisville & Nashville R. R.

E. C. Trotnow, Assistant Superintendent Shops, New York Central R. R.
C. Juneau, Master Car Builder, Chicago, Milwaukee & St. Paul Ry.
G. W. Siedel, Superintendent Motive Power and Equipment, Chicago & Alton R. R.
J. J. Acker, General Foreman Car Department, Chicago, Rock Island & Pacific Ry.
E. T. Spidy, Production Engineer, Canadian Pacific Ry.

W—Standard Blocking for Cradles of Car Dumping Machines

J. McMullen (Chairman), Superintendent Car Department, Erie R. R.
J. W. Senger, District Master Car Builder, New York Central R. R.
J. J. Tatum, Superintendent Car Department, Baltimore & Ohio R. R.
J. E. Davis, Master Mechanic, Hocking Valley Ry.
G. M. Gray, Superintendent Motive Power, Bessemer & Lake Erie R. R.
J. A. Pilcher, Mechanical Engineer, Norfolk & Western Ry.
C. F. Thiele, Chief Car Inspector, Pennsylvania System.

X—Standard Method of Packing Journal Boxes

C. J. Bodemer (Chairman), Assistant Superintendent Machinery, Louisville & Nashville R. R.
I. S. Downing, General Master Car Builder, Cleveland, Cincinnati, Chicago & St. Louis R. R.
J. H. Milton, Superintendent Car Department, Chicago, Rock Island & Pacific Ry.
J. P. Young, General Inspector Passenger Car Equipment, Missouri Pacific R. R.
G. W. Ditmore, Master Car Builder, Delaware & Hudson Co.
L. R. Wink, Assistant Superintendent Car Department, Chicago & North Western Ry.
R. B. Rasbridge, Superintendent Car Department, Philadelphia & Reading Ry.
W. C. Lindner, Chief Car Inspector, Pennsylvania System.

Y—Train Lighting and Equipment

J. R. Sloan Chairman, Chief Electrician, Pennsylvania System.
C. H. Quinn, Chief Electrical Engineer, Norfolk & Western Ry.
E. W. Jansen, Electrical Engineer, Illinois Central R. R.
L. S. Billau, Assistant Electrical Engineer, Baltimore & Ohio R. R.
A. J. Farrelly, Electrical Engineer, Chicago & North Western Ry.
H. A. Currie, Assistant Electrical Engineer, New York Central R. R.
E. Wanamaker, Electrical Engineer, Chicago, Rock Island & Pacific Ry.

Z—Train Resistance and Tonnage Rating

O. P. Reese (Chairman), Superintendent Motive Power, Pennsylvania System.
H. C. Manchester, Superintendent Motive Power and Equipment, Delaware, Lackawanna & Western R. R.
Frank Zeleny, Engineer Tests, Chicago, Burlington & Quincy R. R.
Joseph Chidley, Superintendent Motive Power, New York Central R. R.
W. E. Dunham, Assistant Superintendent Motive Power and Machinery, Chicago & North Western Ry.

Committee on Preparation of Car Builders and Locomotive Dictionaries

Car Builders

W. F. Kiesel, Jr. (Chairman), Mechanical Engineer, Pennsylvania System.
L. K. Sillcox, General Superintendent Motive Power, Chicago, Milwaukee & St. Paul Ry.
R. L. Ettenger, Consulting Mechanical Engineer, Southern Ry.
G. E. Smart, Mechanical Assistant, Car Department, Canadian National Rys.

Locomotives

A. W. Gibbs (Chairman), Chief Mechanical Engineer, Pennsylvania System.
G. S. Goodwin, Mechanical Engineer, Chicago, Rock Island & Pacific Ry.
F. J. Carty, Mechanical Engineer, Boston & Albany R. R.
F. H. Hardin, Chief Engineer Motive Power and Rolling Stock, New York Central R. R.

EQUIPMENT PAINTING SECTION

Officers

E. L. Younger.....*Chairman*
J. G. Keil.....*1st Vice-Chairman*
J. R. Ayers.....*2d Vice-Chairman*
V. R. Hawthorne.....*Secretary*

Committee of Direction

E. L. Younger (Chairman), Foreman Painter, Missouri Pacific R. R.
J. G. Keil, Foreman Painter, New York Central R. R.
J. R. Ayers, General Master Painter, Canadian Pacific Ry.
J. W. Gibbons, General Foreman Locomotive Paint, Atchison, Topeka & Santa Fe Ry.
W. A. Buchanan, Foreman Painter, Delaware, Lackawanna & Western R. R.
Theo. Himburg, Foreman Painter, Denver & Rio Grande R. R.
H. Hengeveld, Master Painter, Atlantic Coast Line R. R.
J. D. Wright, General Foreman Painter, Baltimore & Ohio R. R.
J. F. Gearhart, Foreman Painter, Pennsylvania System.
S. E. Breese, Foreman Painter, New York Central R. R.
F. W. Bowers, Foreman Painter, Erie R. R.

Committee I

Arrangements

David A. Little (Chairman), Foreman Painter, Pennsylvania System.
S. E. Breese, Foreman Painter, New York Central R. R.
F. B. Stage, Glidden Varnish Co.
E. L. Younger, Foreman Painter, Missouri Pacific R. R.

Committee II

Editing

George Warlick (Chairman), Foreman Painter, Chicago, Rock Island & Pacific Ry.
A. E. Green, Foreman Painter, Chicago & North Western Ry.
F. E. Long, Foreman Painter, Chicago, Burlington & Quincy R. R.

Committee III

Tests

Theo. Himburg (Chairman), Foreman Painter, Denver & Rio Grande R. R.
C. F. Mayer, Foreman Painter, Chicago, St. Paul, Minneapolis & Omaha R. R.
F. B. Davenport, Foreman Painter, Pennsylvania System.
A. H. Phillips, Foreman Painter, New York, Ontario & Western R. R.
Jas. McCarthy, Foreman Painter, Grand Trunk Ry.
R. L. Patram, Foreman Painter, Southern Ry.
H. C. Allehoff, Foreman Painter, Oregon-Washington R. R. & Navigation Co.

Committee IV

Standards—Car and Locomotive

B. E. Miller (Chairman), Master Painter, Delaware, Lackawanna & Western R. R.
G. J. Lehnan, Foreman Painter, Chicago & Eastern Illinois R. R.
F. E. Long, Foreman Painter, Chicago, Burlington & Quincy R. R.
C. A. Cook, Foreman Painter, Pennsylvania System.
W. H. Truman, Foreman Painter, Norfolk Southern R. R.
D. A. Little, Foreman Painter, Pennsylvania System.
John H. Kahler, Foreman Painter, Erie R. R.

Committee V

Shop Construction and Equipment

J. R. Ayers (Chairman), General Master Painter, Canadian Pacific Ry.
A. E. Green, Foreman Painter, Chicago & North Western Ry.
A. J. Bishop, Foreman Painter, Northern Pacific Ry.
C. E. Copp, Foreman Painter, Boston & Maine R. R.
L. A. Wilder, Foreman Painter, Cleveland, Cincinnati, Chicago & St. Louis Ry.

Committee VI

Safety and Sanitation

W. A. Buchanan (Chairman), Foreman Painter, Delaware, Lackawanna & Western R. R.
J. S. Gilmer, Foreman Painter, Southern Ry.
E. B. Stair, Master Car Painter, Atlanta & West Point R. R.
W. H. Ford, Foreman Painter, Locomotive Department, Delaware & Hudson Co.
Robt. Woods, Foreman Painter, Grand Trunk Ry., Western Lines.

Committee VII

Maintenance and Care of Paint and Varnish at Terminals

A. H. Phillips (Chairman), Foreman Painter, New York, Ontario & Western R. R.
John W. Houser, Foreman Painter, Cumberland Valley R. R.
James Gratton, Foreman Painter, Buffalo, Rochester & Pittsburgh R. R.
J. N. Voerge, Foremain Painter, Gulf, Colorado & Santa Fe R. R.
W. O. Quest, Foreman Painter, Pittsburgh & Lake Erie R. R.

Committee VIII

Classification of Painting, Repairs and Shopping of Equipment

D. C. Sherwood (Chairman), Assistant Foreman Painter, New York Central R. R.
W. N. Lamb, Foreman Painter, Pennsylvania System.
Marceau Thierry, Foreman Painter, Norfolk & Western Ry.
Thos. Marshall, Foreman Painter, Canadian Pacific Ry.
W. Mollendorf, Foreman Painter, Illinois Central R. R.

Conference Committee on Car Construction

H. M. Butts (Chairman), Foreman Painter, New York Central R. R.
B. E. Miller, Master Painter, Delaware, Lackawanna & Western R. R.
J. W. Gibbons, General Foreman Locomotive Painting, Atchison, Topeka & Santa Fe Ry.
H. Hengeveld, Master Painter, Atlantic Coast Line R. R.
J. J. McNamara, Foreman Painter, Baltimore & Ohio R. R.

Committee on Nominations

Chas. E. Copp (Chairman), Foreman Painter, Boston & Maine R. R.
David A. Little, Foreman Painter, Pennsylvania System.
W. O. Quest, Foreman Painter, Pittsburgh & Lake Erie R. R.
A. J. Bishop, Foreman Painter, Northern Pacific Rv.
Warner Bailey, Boston & Maine R. R.

DIVISION VI—PURCHASES AND STORES

DIVISION VI—PURCHASES AND STORES

The Purchases and Stores Division was organized May 16, 1919, and its duty is to consider and report upon methods for purchasing, storing, distribution and selling of materials and supplies. The Division includes the former activities of the Railway Storekeepers' Association.

The Railway Storekeepers' Association was organized in February, 1904. Its object was the exchange of ideas as to the betterment in method of handling, caring for and use of material and supplies in connection with the operation of railways, by discussion, investigation and reports of experience of its members, and to provide an organization through which the members may agree on such joint action as may be required to have the greatest efficiency in the method of storing, handling, distributing and caring for material.

Since its organization the Division has prepared as recommended practice the following:

Stores Department Book of Rules

The Rules represent and explain the best practices to be used for the efficient operation of the Service of Supply.

Reclamation of Material

Methods for the reclamation of usable materials from the scrap and records to be maintained for efficient results. Practical application of the methods outlined will result in economy and uniformity in the operation of Reclamation Plants.

Stationery—Purchasing, Storage and Distribution

The fundamental principles for the purchase, storage and distribution of stationery are contained in this report. The practices recommended are sound and will result in efficiency and economy in the handling of stationery on the railroads.

Scrap Classification—Handling and Sales

This report includes a complete revision of the scrap classification. The subject was thoroughly investigated in connection with the consumer, dealer and producer.

Ice—Purchasing, Storage and Distribution

A comprehensive and practical treatise on the subject of ice. All phases of this subject were thoroughly investigated and the adoption of the recommendations will result in much saving in the purchase, storage and distribution of ice.

Purchasing Agents' Office Records

Standard forms for use in Purchasing Agents' Offices are recommended. An extensive research and study of the records necessary was made by this committee and the forms submitted are practical.

Lumber—Purchasing, Inspection and Distribution

Recommended procedure for the uniform purchasing and inspection of lumber. Application of the recommendations made in this report will result in economy in the purchasing and inspection of this important commodity.

Rail—All Kinds—Handling and Distribution

This subject was thoroughly investigated and the report recommends the best practices to be employed in the handling and distribution of rail.

Buildings and Structures

Recommendations to be followed in the planning of buildings and structures for the housing of materials, proper location with respect to local conditions, together with illustrations, are contained in this report.

Supply Train Operation

The supply train is invaluable to the Service of Supply and the report recommends this method of delivering material and supplies, fully explaining the reasons therefor, together with statement of savings to be effected by employing the supply train. It will not only expedite delivery of company material, but will increase the car supply and add generally to service efficiency. This report, when submitted at the First Annual Meeting, in June, 1920, was illustrated by moving pictures of the Southern Pacific supply train in actual operation and was exhaustive in its display of this method of distributing materials along the road.

Workable Rules for Carrying Out the Provisions of Section 10, Clayton Anti-Trust Act

A recommendation of standard forms for use on the railroads in carrying out the provisions of Section 10, Clayton Anti-Trust Act.

Subjects now under consideration of the Division are as follows:

Stores Department Book of Rules

Further revisions and changes will be recommended.

Classification of Material

Reclassifying of several items of material and some new classifications will be presented. Also a complete revision of the Classification of Material will be recommended.

Reclamation of Material

Further recommendations and methods for reclaiming material. Moving pictures illustrative of reclamation work, and describing in detail all features of this important subject will be presented.

Material Accounting

Recommended procedure for a uniform method of material accounting was completed by this committee and submitted to the Railway Accounting Officers' Association for suggestions before it is presented for final adoption by the American Railway Association.

The subject of fuel accounting is also under consideration.

Handling and Distributing of Material to the Users

A standard plan for the efficient handling and distributing of material to the users, which includes distribution to the shops and on the line of road, together with the machinery to be employed for this purpose.

Cross Ties—Purchasing, Inspection and Distribution

Recommendations for the efficient purchasing, inspection and distribution of cross ties.

Scrap Classification—Handling and Sales

Investigation is being made of the best methods for the efficient handling of scrap, for the purpose of recommending standard facilities applicable to all conditions. Minor changes in the classification are also being considered.

Purchasing Agents' Office Records

A further report of forms for use in Purchasing Agents' offices will be submitted.

Lumber—Specifications, Purchasing, Inspection, Storage and Distribution

Standard lumber specifications and methods of storage and distribution will be recommended.

Buildings and Structures

Further report on the planning of buildings and structures for the housing of materials.

Supply Train Operation

Further report on the Supply Train, emphasizing the importance of this as the one means of transportation for the efficient, prompt and economic delivery of material.

Fuel Conservation (Joint Committee: Operating-Mechanical-Purchases and Stores)

A report of practical procedure to be employed for effecting fuel economies will be presented.

Joint Inspection of Standard Material (Joint Committee: Mechanical-Purchases and Stores)

Economy to be effected by joint inspection of some standard items of material is under consideration.

Special Subjects—Uniform Accounting

A treatise on uniform accounting in all its phases with relation to materials and supplies.

Unit Piling for Counting

A method for the piling of material by units to facilitate counting; to obtain more accurate information as to quantity on hand; economy in taking stock; better appearance of material; conserving of space.

Service of Supply

A fundamental plan of organization of the Supply Department, to be recommended to the railroads. The plan has for its purpose the broad principles of an organization which will provide, distribute and account for all material.

The accompanying statement shows the organization of the Purchases and Stores Division.

DIVISION VI—PURCHASES AND STORES

Officers

H. E. Ray *Chairman*
F. D. Reed *Vice-Chairman*
J. P. Murphy *Secretary*
W. J. Farrell *Assistant Secretary*

General Committee

H. E. Ray (Chairman), General Storekeeper, Atchison, Topeka & Sant Fe Ry.
F. D. Reed (Vice-Chairman), Vice-President, Chicago, Rock Island & Pacific Ry.
E. N. Bender, General Purchasing Agent, Canadian Pacific Ry.
F. A. Bushnell, Purchasing Agent, Great Northern R. R.
J. P. Murphy, General Storekeeper, New York Central R. R., Lines West.
H. H. Laughton, Assistant to Vice-President (Operating), Southern Ry.
W. G. Phelps, Purchasing Agent, Central Region, Pennsylvania System.
J. G. Stuart, General Storekeeper, Chicago, Burlington & Quincy R. R.
W. A. Summerhays, Purchasing Agent, Illinois Central R. R.
U. K. Hall, General Supervisor of Stores, Union Pacific System.
W. A. Hopkins, Supply Agent, Missouri Pacific R. R.
H. C. Pearce, Director of Purchases and Stores, Chesapeake & Ohio Ry.
E. W. Thornley, Assistant Purchasing Agent, Baltimore & Ohio R. R.
S. B. Wight, Manager, Purchases and Stores, New York Central Lines.
D. C. Curtis, General Storekeeper, Chicago, Milwaukee & St. Paul Ry.
E. J. McVeigh, General Storekeeper, Grand Trunk Ry.

Nominating Committee

F. A. Bushnell, Purchasing Agent, Great Northern Ry.
J. H. Waterman, Superintendent Timber Preservation, Chicago, Burlington & Quincy R. R.
C. E. Walsh, Assistant Purchasing Agent, Central Region, Pennsylvania System.
W. Davidson, General Storekeeper, Illinois Central R. R.
LeRoy Cooley, General Storekeeper, Central R. R. of New Jersey.

Alternates (Nominating Committee)

O. C. Wakefield, General Storekeeper, Northern Pacific Ry.
J. H. Beggs, General Purchasing Agent, Chicago & Eastern Illinois R. R.
J. L. Feemster, General Storekeeper, Chicago Great Western R. R.
F. H. Fechtig, Purchasing Agent, Atlantic Coast Line R. R.
T. J. Frier, Purchasing Agent, Wabash Ry.

Subject I

Stores Department Book of Rules

J. W. Gerber (Chairman), General Storekeeper, Southern Ry. System
W. G. Weldon, Purchasing Agent, Colorado & Southern Ry.
J. G. Stuart (Chairman Ex-Officio), General Storekeeper, Chicago, Burlington & Quincy R. R.

Subject II

Classification of Material

C. H. Bost (Chairman), General Storekeeper, Chicago, Rock Island & Pacific Ry.
F. H. Fechtig, Purchasing Agent, Atlantic Coast Line R. R.
C. L. Wright, General Storekeeper, Missouri, Kansas & Texas R. R.
W. S. Morehead, Assistant General Storekeeper, Illinois Central R. R.
G. T. Dunn, General Storekeeper, Michigan Central R. R.
J. E. Deery, Assistant Purchasing Agent, Southwestern Region, Pennsylvania System.
F. D. Reed (Chairman Ex-Officio), Vice-President, Chicago, Rock Island & Pacific Ry.

Subject III

Reclamation of Material

Wm. Davidson (Chairman), General Storekeeper, Illinois Central R. R.
D. A. Williams, Assistant to Purchasing Agent, Baltimore & Ohio R. R.
W. J. Sidey, Storekeeper, Buffalo, Rochester & Pittsburgh Ry.
O. Nelson, General Storekeeper, Union Pacific R. R.
R. J. Elliot, Assistant Purchasing Agent, Northern Pacific Ry.
J. C. Kirk, Assistant General Storekeeper, Chicago, Rock Island & Pacific Ry.
J. E. Mahaney, Superintendent Stores, Chesapeake & Ohio Ry.
Wm. Hunt, General Storekeeper, Wheeling & Lake Erie Ry.
H. E. Ray (Chairman Ex-Officio), General Storekeeper, Atchison, Topeka & Santa Fe Ry.

Subject IV

Material Accounting

W. E. Brady (Chairman), Chief Accountant, Stores Department, Atchison, Topeka & Santa Fe Ry.
G. A. Secor, General Storekeeper, Chicago & Alton R. R.
R. E. McAndrew, General Storekeeper, Bessemer & Lake Erie R. R.
H. H. Laughton (Chairman Ex-Officio), Assistant to Vice-President (Operating), Southern Ry. System.

Subject VI

Cross Ties—Purchasing, Inspection and Distribution

J. H. Waterman (Chairman), Superintendent, Timber Preservation, Chicago, Burlington & Quincy R. R.
M. J. Collins, General Purchasing Agent, Atchison, Topeka & Santa Fe Ry.
John Foley, Forester, Pennsylvania System.
G. H. Jenkins, Assistant to General Purchasing Agent, Grand Trunk Ry.
A. H. Young, Tie and Timber Agent, Seaboard Air Line Ry.
F. A. Bushnell (Chairman Ex-Officio), Purchasing Agent, Great Northern Ry.

Subject VIII

Handling and Distributing of Material to the Users

W. D. Stokes (Chairman), Assistant General Storekeeper, Illinois Central R. R.
R. C. Harris, General Storekeeper, Pennsylvania System, Central Region.
W. J. Hiner, Purchasing Agent, Cleveland, Cincinnati, Chicago & St. Louis R. R.
R. S. Augsburger, General Storekeeper, Wabash Ry.
Tom Moore, Purchasing Agent, Virginian Ry.
C. D. Young, General Supervisor of Stores, Pennsylvania System.
R. M. Blackburn, General Storekeeper, Chicago & North Western Ry.
H. C. Pearce (Chairman Ex-Officio), Director of Purchases and Stores, Chesapeake & Ohio Ry.

Subject X

Scrap Classification—Handling and Sales

C. H. Hoinville (Chairman), Assistant to General Purchasing Agent, Atchison, Topeka & Santa Fe Ry.
J. C. Kirk, Assistant General Storekeeper, Chicago, Rock Island & Pacific Ry.
J. R. Haynes, Assistant Purchasing Agent, Chicago, Burlington & Quincy R. R.
W. F. Jones, General Storekeeper, New York Central R. R., Lines East.
A. W. Munster, Purchasing Agent, Boston & Maine R. R.
E. H. Hughes, General Storekeeper, Kansas City Southern Ry.
B. T. Jellison (Chairman Ex-Officio), General Purchasing Agent, Chesapeake & Ohio Ry.

Subject XII

Purchasing Agents' Office Records

C. E. Walsh (Chairman), Assistant Purchasing Agent, Central Region, Pennsylvania System.
W. C. Bower, General Purchasing Agent, New York Central R. R.
A. H. Lillengren, Assistant Purchasing Agent, Great Northern Ry.
C. R. Craig, General Purchasing Agent, Southern Ry. System.
E. G. Walker, Assistant Purchasing Agent, Atchison, Topeka & Santa Fe Ry.
L. Lavoie, General Purchasing Agent, Canadian National Rys.
J. F. Marshall, Purchasing Agent, Chicago & Alton R. R.
W. G. Phelps (Chairman Ex-Officio), Purchasing Agent, Pennsylvania System, Central Region.

Subject XIII

Lumber—Specifications, Purchasing, Inspection, Storage and Distribution

Wm. Beatty (Chairman), Chief Clerk to Purchasing Agent, Eastern Region, Pennsylvania System.
Howard Hayes, General Storekeeper, Great Northern Ry.
Paul McKay, Purchasing Agent, Spokane, Portland & Seattle R. R.
J. H. Waterman, Superintendent, Timber Preservation, Chicago, Burlington & Quincy R. R.
James Sinclair, Chief Tie and Timber Agent, Atlantic Coast Line R. R.
S. M. Elder, Lumber Agent, Baltimore & Ohio R. R.
H. P. McQuilken (Chairman Ex-Officio), General Storekeeper, Baltimore & Ohio R. R.

Subject XV

Buildings and Structures

J. E. Byron (Chairman), General Storekeeper, Boston & Maine R. R.
G. J. Fleisch, General Traveling Storekeeper, Atchison, Topeka & Santa Fe Ry.
U. K. Hall (Chairman Ex-Officio), General Supervisor of Stores, Union Pacific System.

Subject XVI

Supply Train Operation

A. S. McKelligon (Chairman), General Storekeeper, Southern Pacific Co.
W. S. Galloway, Purchasing Agent, Baltimore & Ohio R. R.
J. P. Murphy, General Storekeeper, New York Central R. R., Lines West.
Wm. Shaw, General Supply Car Man, Atchison, Topeka & Santa Fe Ry.
J. E. Peery, Inspector of Supply Train Service, Southern Pacific Co.
W. A. Summerhays (Chairman Ex-Officio), Purchasing Agent, Illinois Central R. R.

Subject XVIII

Committee to Prepare Workable Rules for Carrying Out Provisions of Section 10—Clayton Anti-Trust Act

H. B. Spencer (Chairman), President, Fruit Growers Express.
G. G. Yeomans.
S. B. Wight, Manager, Purchases and Stores, New York Central Lines.
E. A. Clifford, Assistant General Purchasing Agent, Atchison, Topeka and Sant Fe Ry.
H. C. Pearce, Director of Purchases and Stores, Chesapeake & Ohio Ry.
C. A. How, General Purchasing Agent, Missouri Pacific R. R.

JOINT COMMITTEE ON JOINT INSPECTION OF STANDARD MATERIAL

(Mechanical Division)

F. M. Waring (Chairman), Engineer Tests, Pennsylvania System.
F. H. Hardin, Chief Engineer, Motive Power and Rolling Stock, New York Central R. R.
J. R. Onderdonk, Engineer Tests, Baltimore & Ohio R. R.
C. B. Young, Mechanical Engineer, Chicago, Burlington & Quincy R. R.
C. T. Ripley, General Mechanical Inspector, Atchison, Topeka & Santa Fe Ry.

(Purchases and Stores Division)

M. J. Collins, General Purchasing Agent, Atchison, Topeka & Santa Fe Ry.
G. W. Bichlmeir, Purchasing Assistant, Union Pacific System.
A. C. Mann, Vice-President, Illinois Central R. R.
B. T. Wood, Vice-President, St. Louis-San Francisco Ry.
S. Porcher, General Purchasing Agent, Pennsylvania System.

DIVISION VII—FREIGHT CLAIMS

DIVISION VII—FREIGHT CLAIMS

The Freight Claim Division was organized on July 31, 1919, and is composed of the former Freight Claim Association. Its duty is to consider and report upon methods for the settlement of freight claims of shippers, consignees and carriers, also to study claim causes and preventive measures.

The Freight Claim Association was organized on March 3, 1892, through the consolidation of the Freight Claim Association of the West, the Railway Freight Claim Association of the Eastern, Western and Southern States and the Freight Claim Officers of the Lines Interested in Texas Traffic.

The consolidation of these organizations was to meet a recognized need for an Association of Freight Claim Officials representing carriers in all parts of the country in order that freight claim matters might be handled with harmony and under uniform rules, thus preventing the difference in regulations which would develop in the maintenance of separate Associations. The object of the Freight Claim Association was the prompt and lawful settlement of freight claims with claimants and between carriers; also the study of claim causes and the application of preventive measures.

Before the organization of the Freight Claim Association, the adjustment of claims was very greatly delayed because of no general understanding among the lines interested as to the division between carriers hauling the freight of the amounts paid to claimants in the settlement of their claims, it frequently occurring that the different carriers interested would hold divergent views regarding such apportionment; as well as with reference to the documentary evidence necessary in support of claims. To overcome this uncertainty as well as to avoid the delay and friction thus caused, there was adopted a code of rules describing the documentary evidence necessary in support of a freight claim and the manner in which the amounts should be apportioned between carriers hauling the freight. These rules were made mandatory and, to provide for determination of any disputes which might arise as to their proper application, an arbitration procedure was set up, the Arbitration Committee being composed of freight claim officers holding membership in the Association.

Another improvement made to adopt rules authorizing the carriers to which claim was presented to make investigation direct with the Agents and Officers of other carriers participating in the haul and negotiate settlements with claimants without prior reference to the other lines interested. Before the adoption of such a plan, it had been necessary for the entire claim file in each case to be presented to all interested carriers for investigation which naturally resulted in delayed adjustments with claimants, with consequent dissatisfaction and complaint.

Further improvement was to discontinue the practice of sending each and every claim file to all interested carriers for authorizing the proportions due under the freight claim rules and to substitute therefor the plan of permitting carriers making payment to claimants to arbitrarily charge the carriers at interest. This had the effect of relieving more promptly the carriers' suspense accounts of the amounts due from connections on interline claims.

One particular improvement which was made by practically all carriers was to substitute a plan of payment to claimant by freight claim agent's draft (in many instances immediately upon receipt of properly supported claims) for the old slow voucher method which called for approval of the proposed payment by several officers before check was executed by treasurer.

A large part of the effort of the Freight Claim Association has been to study the causes of freight claims and to offer recommendations to remedy such claims.

The present activities of the Freight Claim Division may be outlined as follows:

1. The minimizing of controversies and the expenses incident to such litigation as may be brought against carriers by the shipping public in connection with freight claims through the means of conference with representatives of commercial organizations as well as by keeping current and effective the Freight Claim Rules and Rulings, which, in their operation, facilitate the investigation of freight claims and their adjustment with claimants.

2. The making of the Freight Claim Rules and Rulings more effective in their operation in an effort to maintain the least expensive methods of claim investigation and accounting by carriers to which claims are presented, particularly those filed in connection with freight moving over several lines, thus obviating the necessity of litigation as well as prolonged controversies as between carriers; likewise controlling the expenses of litigation regarding claims filed with one carrier in connection with loss or damage which may have occurred on the line of a connection.

3. The reduction of amounts paid in settlement of freight claims by means of the claim prevention organization of the Division, the activities of which are conducted along the following lines:

An educational campaign through means of personal conferences with representatives of the various branches of transportation service, such as freight claim, claim prevention and operating departments, followed up by correspondence and supplemented by bulletin service outlining methods and suggestions for improved service.

The coordination of the activities of the Sectional Claim Conferences, which Conferences in turn coordinate the activities of the carriers in each territory.

The aim is to reduce during the current year by at least fifty percent, the amounts paid in settlement of claims, which at present total approximately $100,000,000.00.

The accompanying statement shows the present organization of the Freight Claim Division.

DIVISION VII—FREIGHT CLAIMS

Officers

H. C. Pribble.....*Chairman*
H. C. Howe.....*1st Vice-Chairman*
Wm. C. Fitch.....*2nd Vice-Chairman*
Lewis Pilcher.....*Secretary*

General Committee

H. C. Pribble (Chairman), General Claim Agent, Atchison, Topeka & Santa Fe Ry. System.
H. C. Howe (First Vice-Chairman), Freight Claim Agent, Chicago & North Western Ry.
W. C. Fitch (Second Vice-Chairman), Freight Claim Agent, Southern Pacific Co.—Pacific System.
J. B. Baskerville, Assistant General Claim Agent, Norfolk & Western Ry.
J. A. Beahan, Freight Claim Agent, New York, New Haven & Hartford R. R.
R. L. Calkins, Freight Claim Agent, New York Central R. R.
H. R. Grochau, Freight Claim Agent, Chicago, St. Paul, Minneapolis & Omaha Ry.
W. B. Kellett, Freight Claim Agent, Fort Worth & Denver City Ry
T. S. Walton, Freight Claim Agent, Missouri Pacific R. R.

Committee on Rules of Order

R. L. Calkins (Chairman), Freight Claim Agent, New York Central R. R.
A. E. Hodson, Freight Claim Agent, Minneapolis, St. Paul & Sault Ste. Marie Ry.
H. M. DeGette, Freight Claim Agent, Elgin, Joliet & Eastern Ry.
J. A. Craig, Freight Claim Agent, Atlanta & West Point R. R.
S. R. Biering, Assistant General Claim Agent, Gulf, Colorado & Santa Fe Ry.
E. Arnold, Freight Claim Agent, Grand Trunk Ry. System.
R. L. Franklin, Freight Claim Agent, Eastern Region, Pennsylvania System.
S. S. Russell, Freight Claim Agent, Central Vermont Ry.
James Copland, Freight Claim Agent, Oregon-Washington R. R. & Navigation Co.

Committee on Loss and Damage Rules

W. O. Bunger (Chairman), General Superintendent Freight Claims, Chicago, Rock Island & Pacific Ry.
H. Bierman, General Freight Claim Agent, Missouri, Kansas & Texas Ry.
W. J. Wilson, Freight Claim Agent, Philadelphia & Reading Ry.
J. M. Eedson, Freight Claim Agent, Toronto, Hamilton & Buffalo Ry.
H. R. Grochau, Freight Claim Agent, Chicago, St. Paul, Minneapolis & Omaha Ry.
A. H. Shepard, Freight Claim Agent, Atlantic Coast Line R. R.
John B. Mordecai, Traffic Manager, Richmond, Fredericksburg & Potomac R. R.
J. H. Miller, Freight Claim Agent, Denver & Rio Grande R. R.
Richard Halley, Freight Claim Agent, Clyde Steamship Co.

Committee on Overcharge Rules

J. J. Hooper (Chairman), General Claim Agent—Overcharge, Southern Ry. System.
J. J. Kearney, Freight Claim Agent, New York, Chicago & St. Louis R. R.
U. G. Couffer, Freight Claim Agent, Central Region, Pennsylvania System.
Ed. L. Prince, Auditor Freight Receipts, Atlantic Coast Line R. R.
Owen Cameron, Freight Claim Agent, Canadian National Rys.
George Greaves, Freight Claim Agent, Southern Ry. System.
E. P. Hook, General Auditor and Freight Claim Agent, Baltimore Steam Packet Co.
C. G. Webb, Freight Claim Agent, Southern Pacific Lines in Texas.
Robt. Crosbie, Comptroller, Spokane, Portland & Seattle Ry.

Committee on Freight Claim Prevention

J. B. Baskerville (Chairman), Assistant General Claim Agent, Norfolk & Western Ry.
C. C. Glessner, Freight Claim Agent, Baltimore & Ohio R. R.
F. W. H. O'Meara, Freight Claim Agent, Chesapeake & Ohio Ry.
J. F. Horrigan, Freight Claim Agent, Northern Pacific Ry.
A. R. McNitt, Freight Claim Agent, Union Pacific R. R.
H. M. Moors, Freight Claim Agent, Southern Pacific Lines in Louisiana.
J. D. Shields, Freight Claim Agent, Chicago, Burlington & Quincy R. R.
C. H. Dietrich, Freight Claim Agent, Chicago, Milwaukee & St. Paul Ry.
C. E. Bingham, Freight Claim Agent, Kansas City Southern Ry.

Committee on Methods, Accounts and Forms

E. B. Whisler (Chairman), Freight Claim Agent, Pittsburgh & Lake Erie R. R.
W. O. Wall, General Claim Agent, Georgia & Florida Ry.
Fred E. Jones, Freight Claim Agent, San Antonio & Aransas Pass Ry.
C. R. Iliff, Freight Claim Agent, Colorado & Southern Ry.
Henry Schmittgens, Jr., Freight Claim Agent, Terminal R. R. Association of St. Louis.

Appeals Committee

J. F. Horrigan (Chairman), Freight Claim Agent, Northern Pacific Ry.
H. Bierman, General Freight Claim Agent, Missouri, Kansas & Texas Ry.
J. J. Hooper, General Claim Agent—Overcharge, Southern Ry. System.
E. Arnold, Freight Claim Agent, Grand Trunk Ry. System.
J. D. Shields, Freight Claim Agent, Chicago, Burlington & Quincy R. R.

Loss and Damage Arbitration Committees

Committee "A"

H. R. Grochau (Chairman), Freight Claim Agent, Chicago, St. Paul, Minneapolis & Omaha Ry.
J. B. Baskerville, Assistant General Claim Agent, Norfolk & Western Ry.
H. M. Moors, Freight Claim Agent, Southern Pacific Lines in Louisiana.

Committee "B"

T. S. Walton (Chairman), Freight Claim Agent, Missouri Pacific R. R.
A. E. Hodson, Freight Claim Agent, Minneapolis, St. Paul & Sault Ste. Marie Ry.
W. J. Wilson, Freight Claim Agent, Philadelphia & Reading Ry.

Committee "C"

C. H. Dietrich (Chairman), Freight Claim Agent, Chicago, Milwaukee & St. Paul Ry.
A. H. Shepard, Freight Claim Agent, Atlantic Coast Line R. R.
J. M. Heath, Freight Claim Agent, Lehigh Valley R. R.

Committee "D"

U. G. Couffer (Chairman), Freight Claim Agent, Central Region, Pennsylvania System.
S. R. Biering, Assistant General Claim Agent, Gulf, Colorado & Santa Fe Ry.
S. W. Patton, Freight Claim Agent, Minneapolis & St. Louis R. R.

Committee "E"

F. W. H. O'Meara (Chairman), Freight Claim Agent, Chesapeake & Ohio Ry.
J. K. Lovell, Assistant Freight Claim Agent, New York Central R. R.
D. C. MacDonald, Assistant General Claim Agent, Canadian Pacific Ry.—Lines West.

Committee "F"

A. R. McNitt (Chairman), Freight Claim Agent, Union Pacific R. R.
C. C. Glessner, General Freight Claim Agent, Baltimore & Ohio R. R.
W. E. Lawson, Freight Claim Agent, Chicago, Indianapolis & Louisville Ry.

Overcharge Arbitration Committee

Committee "G"

J. J. Kearney (Chairman), Freight Claim Agent, New York, Chicago & St Louis R. R.
H. Kaser, Freight Claim Agent, Wheeling & Lake Erie R. R.
George Greaves, Freight Claim Agent—Overcharge Southern Ry. System.

JOINT COMMITTEE ON AUTOMATIC TRAIN CONTROL

JOINT COMMITTEE ON FUEL CONSERVATION

CONFERENCES WITH THE INTERSTATE COMMERCE COMMISSION

STANDARD CONTAINERS

JOINT COMMITTEE ON AUTOMATIC TRAIN CONTROL

Section 26 of the Interstate Commerce Act provides that the Interstate Commerce Commission may after investigation order any carrier subject to the Act to install automatic train stops or train control devices to comply with specifications and requirements prescribed by the Commission.

For the purpose of cooperating with the Interstate Commerce Commission in working out details of a practicable plan under the provisions of Section 26, at the request of the Commission, a Joint Committee on Automatic Train Control has been appointed. The Committee as constituted consists of representatives of the Operating, Engineering, and Mechanical Divisions, and the Signal Section.

The duties of the Joint Committee will be as follows:

(a) Prescribe rules and requirements for tests of Automatic Train Control Devices.

(b) To review the work already done by previous committees in the testing of appliances and to bring the work up to date.

(c) To confer with representatives of the Interstate Commerce Commission in the consideration of this subject.

(d) To arrange with the carriers for practical tests as may seem advisable, and to arrange for the terms and conditions of such tests.

(e) To arrange for necessary record of performances and cost of installation and maintenance and comparisons.

(f) That at all times to coordinate their work with that of the representatives of the Interstate Commerce Commission, and to work in cooperation with such representatives.

The accompanying statement shows the organization of the Joint Committee on Automatic Train Control.

JOINT COMMITTEE ON AUTOMATIC TRAIN CONTROL

Officers

C. E. Denney.....Chairman.
T. H. Beacom.....Vice Chairman representing Operating Division.
A. M. Burt..... " " " Engineering "
J. T. Wallis..... " " " Mechanical "
W. J. Eck..... " " " Signal Section.
G. E. Ellis.....Secretary.

Operating Division

T. H. Beacom, Vice-President and General Manager, Chicago, Rock Island & Pacific Ry.
W. M. Jeffers, General Manager, Union Pacific R. R.
C. E. Denney, Vice-President and General Manager, New York, Chicago & St. Louis R. R.
B. R. Pollock, Vice-President and General Manager, Boston & Maine R. R.
A. Price, General Manager, Canadian Pacific Ry.

Engineering Division

A. M. Burt, Assistant to Vice-President—Operation, Northern Pacific Ry.
E. B. Katte, Chief Engineer Electric Traction, New York Central R. R.
F. Ringer, Chief Engineer, Missouri, Kansas & Texas Ry.
A. W. Newton, Chief Engineer, Chicago, Burlington & Quincy R. R.
W. P. Wiltsee, Assistant Engineer, Norfolk & Western Ry.

Signal Section

W. J. Eck, Signal and Electrical Superintendent, Southern Ry.
C. H. Morrison, Signal Engineer, New York, New Haven & Hartford R. R.
F. P. Patenall, Signal Engineer, Baltimore & Ohio R. R.
J. A. Peabody, Signal Engineer, Chicago & North Western Ry.
T. S. Stevens, Signal Engineer System, Atchison, Topeka & Santa Fe Ry.

Mechanical Division

J. T. Wallis, Chief Motive Power, Pennsylvania System.
R. W. Bell, General Superintendent Motive Power, Illinois Central R. R.
C. F. Giles, Superintendent of Machinery, Louisville & Nashville R. R.
G. McCormick, General Superintendent Motive Power, Southern Pacific Co.
J. C. Garden, Acting General Superintendent Motive Power and Car Department, Grand Trunk Ry.

JOINT COMMITTEE ON FUEL CONSERVATION

A Joint Committee on Fuel Conservation has recently been organized to consist of representatives of the Operating, Mechanical and Purchases and Stores Divisions.

It has been decided for the present that the following subjects be given consideration:

1. Organization for Fuel Conservation, having in mind cooperation of various departments and employes.

2. Inspection of Fuel at mines, and preparation of a fuel schedule or specification.

3. Statistics.

4. Methods of Conservation—Mechanical and otherwise.

The Joint Committee has issued a pamphlet on Fuel Economy on Locomotives, which has been given wide distribution.

The accompanying statement shows the organization of the Joint Committee:

JOINT COMMITTEE ON FUEL CONSERVATION

Officers

Wm. Schlafge.....Chairman.
V. R. Hawthorne.....Secretary.

Mechanical Division

Wm. Schlafge (Chairman), Mechanical Manager, Erie R. R.
G. H. Emerson, Chief of Motive Power and Equipment, Baltimore & Ohio R.R.
J. Hainen, Assistant to Vice-President, Southern Ry.
W. J. Tollerton, General Mechanical Superintendent, Chicago, Rock Island & Pacific Ry.
J. Purcell, Assistant to Vice-President, Atchison, Topeka & Santa Fe Ry.
H. M. Curry, General Mechanical Superintendent, Northern Pacific Ry.
C. H. Wiggin, Superintendent Motive Power, Boston & Maine R. R.

Operating Division

J. B. Parrish, General Manager, Chesapeake & Ohio Ry.
E. M. Costin, General Manager, Cleveland, Cincinnati, Chicago & St. Louis Ry.
F. H. Hammill, Assistant General Manager, Chicago & Northwestern Ry.
W. M. Jeffers, General Manager, Union Pacific R. R.
J. E. Hutchinson, General Manager, St. Louis-San Franciso Ry.
W. D. Robb, Vice President, Grand Trunk Ry.

Purchases and Stores Division

S. B. Wight, Manager Purchases and Stores, New York Central R. R.
S. Porcher, General Purchasing Agent, Pennsylvania System.
H. B. Grimshaw, Assistant to General Manager, Seaboard Air Line Ry.
L. N. Hopkins, Purchasing Agent, Chicago, Burlington & Quincy R. R.
F. A. Bushnell, Purchasing Agent, Great Northern Ry.
G. E. Scott, Purchasing Agent, Missouri, Kansas & Texas Ry.
Thos. Britt, General Fuel Agent, Canadian Pacific Ry.

CONFERENCES WITH THE INTERSTATE COMMERCE COMMISSION

Numerous conferences have been held between members of the Interstate Commerce Commission and properly accredited representatives of the association, on various subjects, such as automatic train control, safety appliance laws, etc., etc.

STANDARD CONTAINERS

Believing that a material decrease can be made in the amount of loss and damage to freight shipments if closer study is given to the adequacy of the containers used, the Board of Directors of the American Railway Association at its meeting on May 27, 1921, authorized the expansion of the Bureau of Explosives for that purpose. Col. B. W. Dunn, the Chief Inspector of the Bureau, has been directed to proceed with the formulation of standard container specifications. In the prosecution of this work the Chief Inspector has already arranged for the co-operation of a Committee from the National Industrial Traffic League and will arrange also with the shippers and manufacturers of containers for co-operation through their experts. It will be without doubt possible through this co-operation of the technical experts of manufacturers of shipping containers and the experts in the employ of the Bureau of Explosives, in co-operation with the several Divisions of the Association, to arrive at standards for containers for the majority of the freight transported, which will adequately protect it and reduce the economic waste through loss and damage due to containers as well as the payments made therefor by the railroad companies.

EXHIBIT A

American Railway Association

ARTICLES OF ORGANIZATION

ARTICLE 1. The name of this organization is the "American Railway Association," with headquarters in New York City.

ARTICLE 2. Its object is, by recommendation, to harmonize and coordinate the principles and practices of American railroads with respect to their construction, maintenance and operation.

ARTICLE 3. Its membership shall consist of carriers which operate American steam railroads, but no carrier operating less than one hundred miles of road, including trackage rights, or which operates primarily as a plant facility, shall be eligible for membership.

Each carrier shall be entitled to exercise the right of one membership for each one thousand miles of road, or fraction thereof, including trackage rights operated by it.

The Board of Directors may admit to the Association as associate members carriers which, in the judgment of the Board, are not eligible for membership.

ARTICLE 4. Each membership shall be entitled to one vote, which vote shall be cast only by the chief executive officer of the member voting, or by the officer designated by him. Associates shall not be entitled to vote, but otherwise shall have the same standing as members.

ARTICLE 5. Representation in the Association shall be restricted to the chief executive officer of each carrier holding membership therein, or to an officer designated by him.

Members may be represented in each Division by their officers in charge of matters coming within the scope of the Division.

ARTICLE 6. A carrier may terminate its membership by formal withdrawal after the payment of assessments due; or if it shall fail to pay its dues and assessments for two consecutive years its membership may be terminated by the Board of Directors.

ARTICLE 7. Its officers shall consist of a President, a First Vice-President, a Second Vice-President, and a General Secretary and Treasurer. The term of any such officer shall terminate with the appointment of his successor. These officers shall receive such salaries, if any, as shall be determined by the Board of Directors.

The work of the Association shall be conducted by a Board of Directors, of eighteen elected members, one of whom shall be selected by the Board as Chairman, and an Executive Committee, constituted as hereinafter prescribed. The Board shall select from among its number one member to represent it in the work of each of the Divisions into which the Association is divided. The members of the Board of Directors so selected become the Executive Committee.

There shall be also a Committee on Nominations of five elected members.

ARTICLE 8. It shall be the duty of the President to preside at all meetings of the Association and to exercise general supervision over the affairs of the Association. He shall be ex-officio a member of the Board of Directors and of all Committees.

In the absence of the President his duties shall devolve upon the First Vice-President. In the absence of the First Vice-President the Second Vice-President shall perform the duties of President.

ARTICLE 9. It shall be the duty of the General Secretary to keep a full and complete record of the proceedings of each regular and special session, to notify members of the date and location of, and to provide printed copies of the proceedings of each session, and of each meeting of the several Divisions, to issue all circulars and to compile information for the use of the Association and of the various Divisions thereof. He shall act as Secretary of the Board of Directors, the Executive Committee, and the Committee on Nominations. He shall either act as Secretary of the Divisions and of the several Sections and Committees thereof, or in connection with the Chairman and Vice-Chairman of any Division or Section he may appoint a Secretary thereof, and shall see that the minutes of the sessions of the Divisions, the Sections and of the several Committees are properly kept, and from time to time shall attend their sessions. He shall be the custodian of the Library and of all records of the Association, and under the direction of the Board of Directors shall authorize all disbursements on account thereof. He shall select an Assistant General Secretary and such other assistants as the business of the Association may require, subject to the approval of the Board of Directors, and shall perform such other duties as may be assigned to him.

ARTICLE 10. The Treasurer shall receive, disburse and account for all monies received or expended, and shall deposit the funds of the Association in such banks or places of deposit as may be approved by the Board of Directors. He shall make a semi-annual report of the finances in detail to such Board, and, with its consent, may selected an Assistant Treasurer to act in his absence.

ARTICLE 11. The powers and duties conferred on the American Railway Association by these Articles of Organization are subject to the resolution adopted by the Association of Railway Executives, July 1, 1920, viz.: The Association of Railway Executives shall have at all times executive control of all railway and railroad associations.

ARTICLE 12. These Articles may be amended on the recommendation of the Board of Directors, if approved by a two-thirds vote of the members of the Association.

BY-LAWS

1. A regular session of the Association will be held on the third Wednesday of November of each year at such place as the Board of Directors may determine. Special sessions shall be called by the President at the request of the Board of Directors, or on the written request of ten members. The Board of Directors may change the date of a regular session when in its judgment the best interests of the Association will be thereby conserved.

2. In addition to the Board of Directors, the Executive Committee, and the Committee on Nominations, the organization includes the following Divisions:

DIVISION I—Operating.

DIVISION II—Transportation.

DIVISION III—Traffic.

DIVISION IV—Engineering.

DIVISION V—Mechanical.

DIVISION VI—Purchases and Stores.

DIVISION VII—Freight Claims.

Each Division shall be presided over by a Chairman and one or more Vice-Chairmen, who shall be elected by the Division.

Each Division shall arrange for the selection of a "General Committee" to harmonize and co-ordinate the work of such Division and for the proper transmission of recommendations of the Division, and such other Committees as may be necessary to facilitate the handling of the matters with which the Division is charged, subject to the approval of the Executive Committee. Any Committee of any Division may appoint such sub-committees as it may

find desirable for the advancement of its work, subject to the approval of the "General Committee."

The time and place of holding sessions of Divisions, the method of selecting committees, and the members thereof, and of conducting its business shall be decided upon by the representatives of the members in each Division, subject to the approval of the Executive Committee. The officers and committees of Divisions shall be so chosen as to fairly represent geographically all carriers of the country.

Any Division may, with the approval of the Board of Directors, permit others than representatives of members to become affiliated members of such Division and to serve on and vote in Committees. Qualifications for affiliated membership shall be fixed by each Division.

3. Six members of the Board of Directors shall be elected each year to serve for three years. Three members and two members of the Committee on Nominations, each to serve for two years, shall be elected alternately. These elections shall be by letter ballot in advance of the regular sessions of the Association.

4. The Board of Directors shall exercise general supervision over the affairs of the Association and pass upon applications for membership.

It shall appoint the President, the Vice-Presidents, and the General Secretary and Treasurer, and prescribe their salaries, if any.

It shall nominate nine persons and six persons, in alternate years, as candidates for the Committee on Nominations. Such nominations shall be so made as to fairly represent geographically all carriers.

It shall report to the Association at each regular session the action it has taken and its recommendations on matters of importance.

In addition to the duty of supervising the activities of the several Divisions, the Board of Directors may assign to the Executive Committee such other duties as it deems advisable.

Whenever the Committee on Nominations shall cease to have a quorum in its membership, the Board of Directors shall make such appointments as are necessary to fill the vacancies.

5. The Committee on Nominations shall nominate each year the names of eighteen executive officers as candidates for the Board of Directors. Such nominations shall be so made as to fairly represent geographically all carriers.

6. It shall be the duty of Division I—Operating, to consider and report upon questions affecting operating practices.

7. It shall be the duty of Division II—Transportation, to consider and report upon questions affecting the efficient use and interchange of equipment.

8. It shall be the duty of Division III—Traffic, to consider and report upon rules, regulations and practices (not including rates, fares, or classifications for rating) which affect the operation of the railroads in relation to the public.

9. It shall be the duty of Division IV—Engineering, to consider and report upon methods affecting the location, construction and maintenance of railroads.

10. It shall be the duty of Division V—Mechanical, to consider and report upon methods of construction, maintenance and service of the rolling stock of railroads.

11. It shall be the duty of Division VI—Purchases and Stores, to consider and report upon methods for purchasing, storing, distribution and selling of materials and supplies.

12. It shall be the duty of Division VII—Freight Claims, to consider and report upon methods for the settlement of freight claims of shippers, consignees and carriers; also to study claim causes and preventive measures.

13. Reports, except the report of the Board of Directors, shall be prepared at least thirty days prior to the date of the session at which they are to be considered by the Association and copies forwarded to the members by the General Secretary with the call for the meeting.

14. A person who becomes a member of the Board of Directors or of a Committee shall continue to perform the duties thereof to the end of his term, so long as he is an official of a member of the Association, whether in the service of the original member or of another. A vacancy on the Board of Directors or on a Committee caused by resignation or disability shall be filled by the vote of its remaining members except as provided in By-Law 4.

When a member of the Board of Directors or of a Committee shall be absent three times consecutively from regularly called meetings of the Board of Directors or of the Committee his membership ceases *ipso facto*, and the Board or Committee shall act as in the case of a vacancy from any other cause.

15. Any officer of a member when properly accredited by his chief executive officer will be admitted to the sessions, and may join in the discussions or serve on the Committees of the Association, except the Board of Directors and the Committee on Nominations.

16. Thirty members shall constitute a quorum for the transaction of business, but a lesser number may adjourn from time to time.

17. Each membership shall pay an annual fee of $10, and such other sums as are assessed by the Board of Directors for conducting the affairs of the Association. Each associate shall pay annual dues of $20, but shall not be subject to assessments. Annual dues shall be payable on April 1st. Assessments shall be based upon the number of miles of road operated, leased or controlled by each member at the time the assessment shall be payable or on such other basis as may be prescribed from time to time by the Board of Directors.

18. A member shall not be entitled to vote if in arrears to the Association.

19. Each member shall have the privilege of voting for any six candidates for membership on the Board of Directors, and for any two (or three) candidates for membership on the Committee on Nominations. The six persons receiving the highest number of votes cast for membership on the Board of Directors and the two (or three) persons receiving the highest number of votes cast for membership on the Committee on Nominations, shall be declared elected. All such votes shall be by letter ballot on forms prepared by the Committee on Nominations. A member may cast such ballot for any eligible representative of a member of the Association for membership on the Board of Directors, or on any Committee.

20. A vote in the regular sessions of the Association may be taken *viva voce*, by rising, by roll-call or by ballot, in any of which members only shall participate.

Letter ballots other than for elections may be ordered to be taken in such manner and under such conditions as the Board of Directors may from time to time direct.

21. In all letter ballots for members of the Board of Directors and of Committees, the following form of voting shall be adhered to:

An envelope shall be provided on which there shall be a blank space for the name of the member, the name of the official voting and the number of votes which he casts. In these envelopes the ballots shall be placed by those voting them, and they shall then be forwarded to the General Secretary, and by him presented to three tellers to be appointed by the President. Such tellers shall be so selected as to fairly represent geographically all carriers of the country.

22. At all regular sessions of the Association the regular order, unless otherwise directed by a majority of the members present, shall be as follows:

1. Announcement of members present.
2. Approval of minutes of previous meeting.
3. Reports.
4. Unfinished business.
5. Miscellaneous business.

23. The members of the Board of Directors and of Committees shall serve for the periods designated or until their successors are elected and qualified. Any member of the Board of Directors may resign by giving notice to the Board; any member of a Committee may resign by giving notice to its Chairman.

24. The proceedings of this Association shall be governed by "Robert's Rules of Order," except as otherwise herein provided.

25. These By-Laws may be amended by the Board of Directors at any regular meeting or at a special meeting called for the purpose, provided two-thirds of all the members constituting the Board vote in favor of said amendment.

THE AMERICAN RAILWAY ASSOCIATION

CHAIRMAN

BOARD OF DIRECTORS

COMMITTEE ON NOMINATIONS

AUDITING COMMITTEE

EXECUTIVE COMMITTEE

PRESIDENT

GENERAL SECRETARY & TREASURER

DIVISION I - OPERATING

Chairman
Vice-Chairman
General Committee
- Committee on Nominations
- Committee on Operating Rules
- Committee on Grade Crossing Protection & Trespassing
- Committee on Transportation of Explosives & Other Dangerous Articles
- Conference Committee
- Special Committee on Loading, Unloading, & Handling of Flammable Liquids

MEDICAL and SURGICAL SECTION
Chairman
First Vice-Chairman
Second Vice Chairman
Third Vice Chairman
Secretary
- Committee of Direction
- Committee on Sanitary Code
- Committee on Preventive & Control of Occupational Diseases & Hazards
- Committee on Physician Standards
- Committee on Hospital Standards
- Committee on Examination of Persons Under the Influence of Liquor or Narcotics
- Special Committee on Treatment of Burns
- Committee on Nominations
- Committee on Arrangements for Annual Meeting

TELEGRAPH and TELEPHONE SECTION
Chairman
First Vice-Chairman
Second Vice Chairman
Secretary
- Committee of Direction
- Committee on Nominations
- Committee I - Construction & Maintenance Outside Plant
 - Sub-Committee A - Construction & Maintenance of Pole Lines
 - Sub-Committee B - Wire Crossings
 - Sub-Committee C - Underground Construction
 - Sub-Committee D - Transposition
- Committee II - Construction & Maintenance - Inside Plant
 - Sub-Committee G - Apparatus & Systems
 - Sub-Committee H - Switchboard Layouts
 - Sub-Committee I - Circuits & Circuit Supply
 - Sub-Committee P - Installation & Maintenance
- Committee III - Protective Against Electrolysis
- Committee IV - Interdepartmental Lightning Protection & Power Circuits
- Committee V - Train Dispatch & Telephone Development
- Committee VI - Pneumatic Tube Traffic
- Committee VII - Inductive Interference
- Committee VIII - Editing
- Committee IX - Future Activities & Topics
- Committee X - Training
- Committee XI - Telephone Transmission
- Committee XII - Radio & Wireless Wireless
- Committee XIII - Arrangements

PROTECTIVE SECTION
Chairman
First Vice Chairman
Second Vice Chairman
Secretary
- Committee of Direction
- Committee on Nominations
- Committee on Cooperation with Freight Claim Division
- Committee on Arrangements for Annual Meeting

FREIGHT STATION SECTION
Chairman
First Vice Chairman
Second Vice-Chairman
Secretary
- Committee of Direction
- Committee on Nominations
- Committee on Freight Station Rules
- Committee on Topics
- Committee on Arrangements
- Committee on Operating
- Committee on Station Traffic
- Committee on Station Settlements
- Sectional Committees at Important Traffic Centers

SAFETY SECTION
Chairman
First Vice-Chairman
Second Vice-Chairman
Secretary
- Committee of Direction
- Publicity & Educational Committee
- Committee on Prevention of Grade Crossing Accidents
- Temporary Committee on Nominations
- Committee on Arrangements

DIVISION II - TRANSPORTATION

Chairman
Vice Chairman
Chairman Executive Committee
Secretary
- General Committee
- Committee on Nominations
- Hy-Dem Rules Arbitration Committee
- Committee on Demurrage, Storage, Reconsignment & Diversion
- Committee on Car Service
- Committee on Records
- Committee on Railroad Business Mail
- Committee on Freight Handling Service

DIVISION III - TRAFFIC

Chairman
Vice-Chairman
Secretary
- General Committee
- Committee on Standardization of Containers, Packing & Marking
- Committee on Weights & Inspection of Freight Traffic
- Committee on Car Service & Demurrage & Storage

DIVISION IV - ENGINEERING

Chairman
Vice Chairman
Secretary
- General Committee
- CONSTRUCTION and MAINTENANCE SECTION
 - Chairman
 - Secretary
 - Committee of Direction
 - Committee I - Roadway
 - Committee II - Ballast
 - Committee III - Ties
 - Committee IV - Rail
 - Committee V - Track
 - Committee VI - Buildings
 - Committee VII - Wooden Bridges & Trestles
 - Committee VIII - Masonry
 - Committee IX - Signs, Fences & Crossings
 - Committee XI - Records & Accounts
 - Committee XII - Rules & Organization
 - Committee XIII - Water Service
 - Committee XIV - Yards & Terminals
 - Committee XV - Iron & Steel Structures
 - Committee XVI - Economics of Railway Location
 - Committee XVII - Wood Preservation
 - Committee XX - Uniform General Contract Forms
 - Committee XXI - Economics of Railway Operation
 - Committee XXII - Economics of Railway Labor
 - Committee XXIII - Shops & Locomotive Terminals
 - Special Committee on Stresses in Railroad Track
 - Special Committee on Standardization
 - Special Committee on Clearance Diagram
- ELECTRICAL SECTION
 - Chairman
 - Vice-Chairman
 - Secretary
 - Committee of Direction
 - Committee I - Electricity
 - Committee II - Overhead & Third Rail Working Conductors
 - Committee III - Crossings of Power & Other Service Wires
- SIGNAL SECTION
 - Chairman
 - First Vice-Chairman
 - Second Vice-Chairman
 - Secretary
 - Committee of Direction
 - Committee on Committees
 - Committee on Annual Meeting Arrangements
 - Committee on Nominations
 - Committee I - Editing
 - Committee II - Mechanical Interlocking
 - Committee III - Power Interlocking
 - Committee IV - Direct Current Automatic Block Signaling
 - Committee V - Maintenance Rules & Instructions
 - Committee VI - Standard Designs
 - Committee VII - Direct Current Relays
 - Committee VIII - Alternating Current Automatic Block Signaling
 - Committee IX - Wires & Cables
 - Committee X - Signaling Practice
 - Committee XI - Batteries
 - Committee XII - Contracts
 - Committee XIII - Electrical Testing
 - Committee XIV - Lightning Protection
 - Committee XV - Valuation
 - Committee XVI - Oils
 - Committee XVII - Pole Lines
 - Committee XVIII - Direct Current Track Circuits
 - Committee XIX - Electric Railway Signaling
 - Committee XX - Highway Crossing Protection
 - Sectional Committees

DIVISION V - MECHANICAL

Chairman
Vice Chairman
Secretary
- General Committee
- Nominating Committee
- Committee A - Arbitration
- Committee A1 - Prices for Labor & Material
- Committee B - Arrangements
- Committee C - Autogenous & Electric Welding
- Committee D - Car Construction
- Committee D1 - Bigger Shoe & Brake Beam Equipment
- Committee D2 - Couplers & Draft Gears
- Committee D3 - Train Brakes & Signal Equipment
- Committee E - Car Wheels
- Committee F - Committees
- Committee G - Locomotive Construction
- Committee G1 - Design & Maintenance of Locomotive Boilers
- Committee G2 - Feed Water Heaters for Locomotives
- Committee G4 - Mechanical Stokers
- Committee H - Loading Rules
- Committee I - Manual
- Committee K - Safety Appliances
- Committee L - Specifications & Tests for Materials
- Committee M - Subjects
- Committee N - Tank Cars
- Committee P - Car Repair Shop Layouts
- Committee Q - Design, Maintenance & Operation of Refrigerating Stock
- Committee R - Engine Terminals, Design & Operation
- Committee S - Lateral Motion on Locomotives
- Committee T - Locomotive Headlights & Classification Lamps
- Committee U - Modernization of Stationary Boiler Plants
- Committee V - Scheduling of Equipment through Repair Shops
- Committee W - Standard Portion for Cast-in Car Journal Machines
- Committee X - Standard Method of Packing Journal Boxes
- Committee Y - Travelling Staff Equipment
- Committee Z - Draft Resistance & Tonnage Rating
- EQUIPMENT PAINTING SECTION
 - Chairman
 - First Vice-Chairman
 - Second Vice-Chairman
 - Secretary
 - Committee of Direction
 - Committee on Nominations
 - Committee I - Arrangements
 - Committee II - Editing
 - Committee III - Tests
 - Committee IV - Standards - Car & Locomotive
 - Committee V - Shop Construction & Equipment
 - Committee VI - Safety & Sanitation
 - Committee VII - Maintenance of Paint Forces at Terminals
 - Committee VIII - Classification of Painting, Repairing, Stripping of Equipment
 - Conference Committee on Car Construction
 - Conference Committee on Specifications for Paints & Paint Materials

DIVISION VI - PURCHASES & STORES

Chairman
Vice Chairman
Secretary
- General Committee
- Nominating Committee
- Committee on Committees
- Subject 1 - Stores Department Board of Rules
- Subject 2 - Classification of Material
- Subject 3 - Reclamation of Material
- Subject 4 - Material Accounting
- Subject 6 - Cross Ties - Purchasing, Inspection & Distribution
- Subject 8 - Handling, Distributing of Material to the Users
- Subject 10 - Scrap - Classification, Handling & Sales
- Subject 12 - Purchasing Agents Office Records
- Subject 13 - Lumber Specifications, Purchasing, Inspection, Storage & Distribution
- Subject 15 - Buildings & Structures
- Subject 16 - Supply Train Operation
- Subject 18 - Committee to Prepare Workable Rules for Carrying out the Provisions of the Clayton Anti-Trust Act

DIVISION VII - FREIGHT CLAIMS

Chairman
Vice Chairman
Second Vice Chairman
Secretary
- General Committee
- Committee on Rules of Order
- Committee on Loss & Damage Rules
- Committee on Overcharge Rules
- Committee on Freight Claim Prevention
- Committee on Methods, Accounts & Forms
- Appeal Committee
- Committee A / Committee B / Committee C / Committee D / Committee E / Committee F — Loss & Damage Arbitration Committee
- Committee G - Overcharge Arbitration Committee

CAR SERVICE DIVISION

Chairman
- Manager, Railroad Relations Section
- Manager, Public Relations Section
- Manager, Closed Car Section
- Manager, Open Car Section
- Manager, Refrigerator Car Department, District Manager
- Manager, Troop Movement Department
- Secretary

JOINT COMMITTEE ON AUTOMATIC TRAIN CONTROL

Chairman
Vice Chairman
Secretary
- Conference Committee
- Chairman, Joint Committee
- Vice-Chairman, representing Operating Division
- Vice-Chairman, representing Engineering Division
- Vice-Chairman, representing Mechanical Division
- Vice-Chairman, representing Signal Section

JOINT COMMITTEE ON FUEL CONSERVATION

Chairman
Secretary
- Committee of Direction
- Chairman, Joint Committee
- Vice-Chairman, representing Mechanical Division
- Vice-Chairman, representing Operating Division
- Vice-Chairman, representing Purchases & Stores Division

JOINT COMMITTEE ON JOINT INSPECTION OF STANDARD MATERIAL

Chairman
Secretary

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American Railway Association
Historical statement; Present activities,
August 15, 1921.

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